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Preface

We present the 23rd edition of Manorama Year Book with great pride and satisfaction. The print order of this 1988 edition is 1,00,000 copies – the highest ever circulation achieved by any publication of its kind in India. We thank the readers for their unstinted support.

Malayala Manorama is striding into the Centenary Year as the highest circulated daily in India. We are very happy that the sales graph of all our publications, including the only other English publication, *The Week* is moving up quite satisfactorily.

In the 1988 edition of Manorama Year Book, we have four Special Features – Superconductivity: Who Will Pull the Magic Wire First, Sri Lanka: Ethnic Conflict and the Prospects of Peace, Goa: The Youngest State and Seoul Olympics: the Gold Rush.

This is the Olympic Year and hence the feature on Seoul Meet has been enlarged with statistical data, expert comments and pictures. We thank Mr. Hyon-Ung Shin, Director General, International Press, Seoul Olympics Organizing Committee for sending us the necessary material to embellish the cover story.

In addition to the Special Features, we have introduced 'Updates' in all the four sections on Science & Technology, World Panorama, India & States and The World of Sports. The 'Science Update' is a feature on the Third Millennium. The 'World Update' is on the rise of Yen and its impact on world economy. An insight into the Indian economy's capacity to absorb the drought shock is the 'update' on India and States. A review of the greatest sports year that was – is the 'Update' on Sports.

Indian film industry is 75 years old. And Indian film music is celebrating the golden jubilee this year. We have two special articles prepared by an expert on the theme: The glorious 75 years of Indian cinema.

The two sections in colour – Maps of Countries and Continents and Tourist Spots in India are printed on glazed newsprint this time.

K.M. Mathew
Chief Editor

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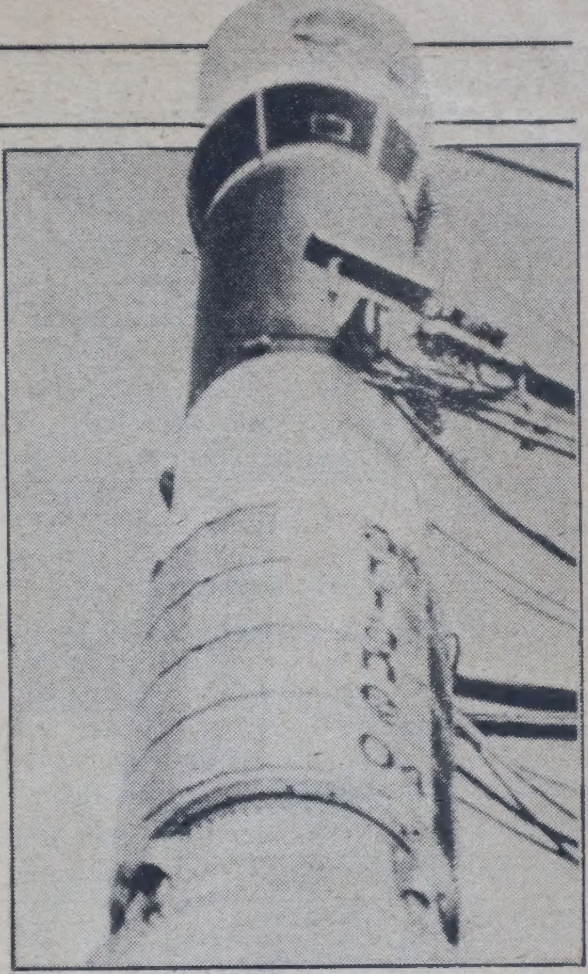

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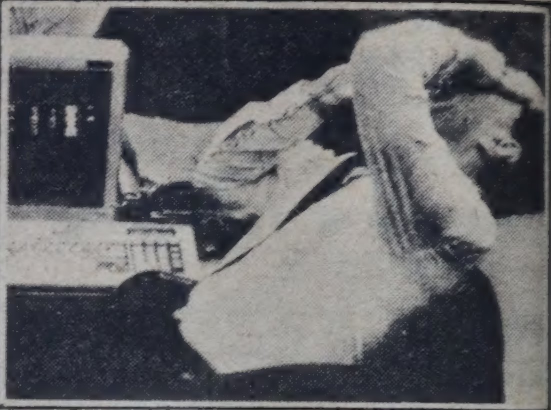

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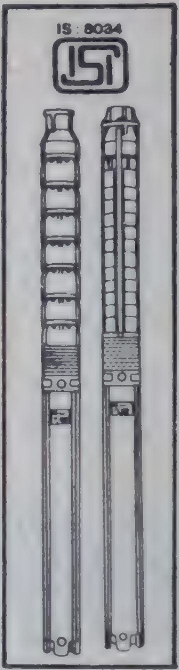

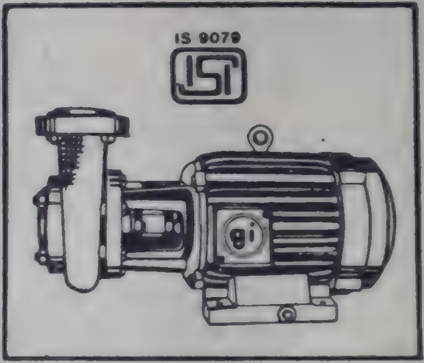

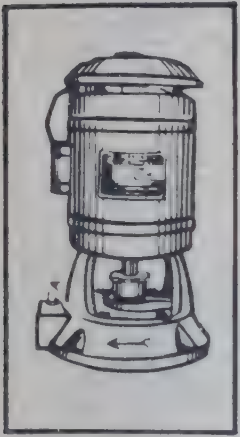

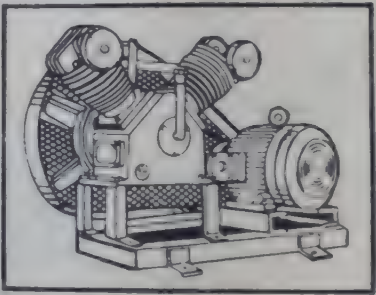

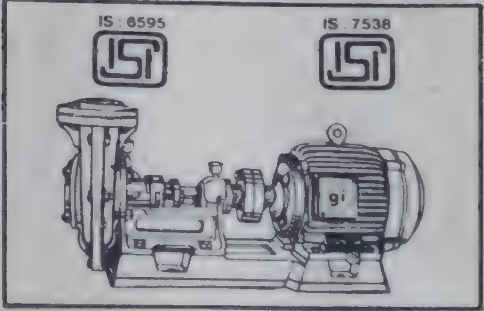
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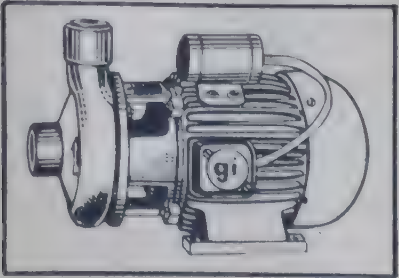

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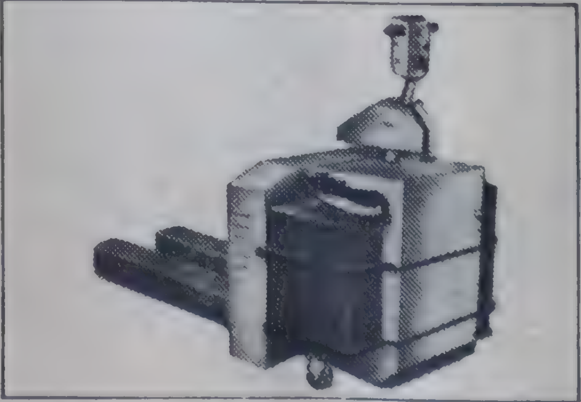

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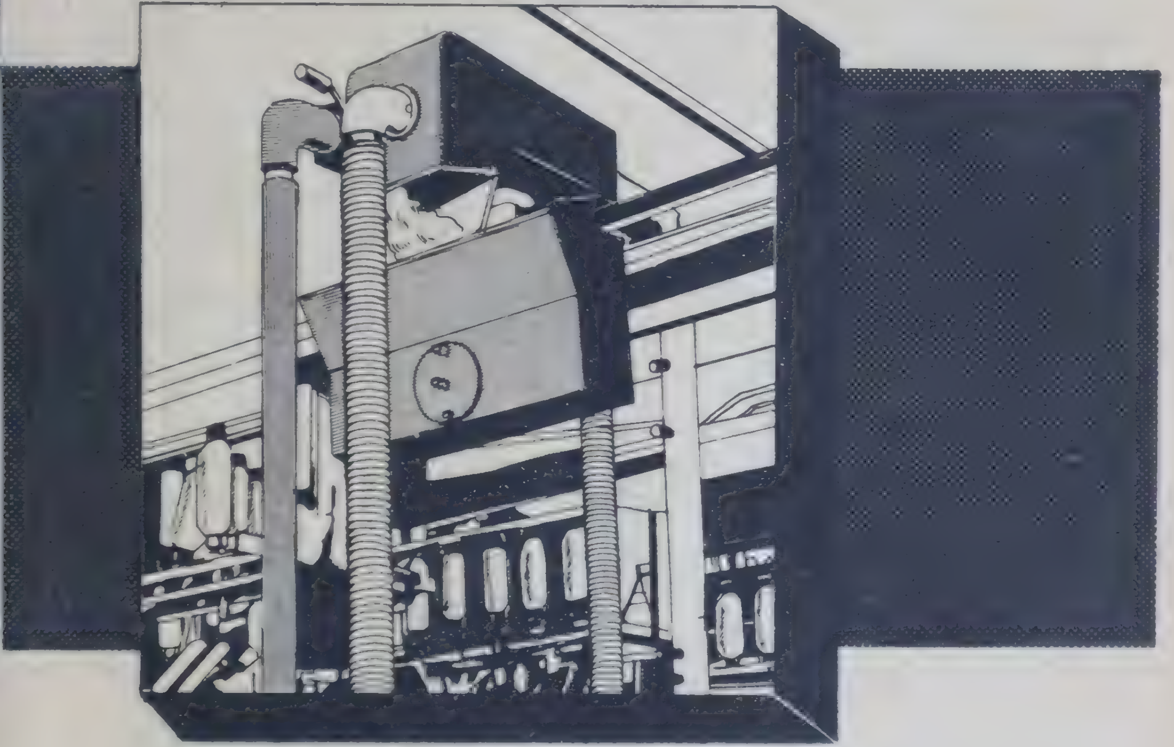

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Rs. in lakhs

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Capital & Liabilities			
Paid-up Capital	203	204	**205**
Reserves & Surplus	191	230	**336**
Secured Loans	165	225	**270**
Unsecured Loans	1568	2424	**3239**
Other Liabilities	513	693	**786**
Total	2640	3776	**4836**
Property & Assets			
Fixed Assets	783	1107	**1629**
Investments	32	30	**69**
Current Assets	1619	2257	**2610**
Loans and Advances	198	374	**520**
Misc. Expenditure	8	8	**8**
Total	2640	3776	**4836**

A COMPARATIVE POSITION OF THE WORKING RESULTS

Gross Income	304	749	**566**
Less :			
Interest	108	283	**217**
Administrative Expenses	47	155	**89**
Depreciation	52	129	**116**
Taxation	—	28	**22**
	207	595	**444**
Net Profit For the Period / Year	97	154	**122**
Add : Surplus from last Year / Period	29	29	**23**
	126	183	**145**

HIGHLIGHTS

No. of Depositors	26175	36764	**51134**
No. of Borrowers	6612	11651	**16565**
No. of Branches	21	24	**27**
No. of Sakthi Safe Vaults	7	8	**9**

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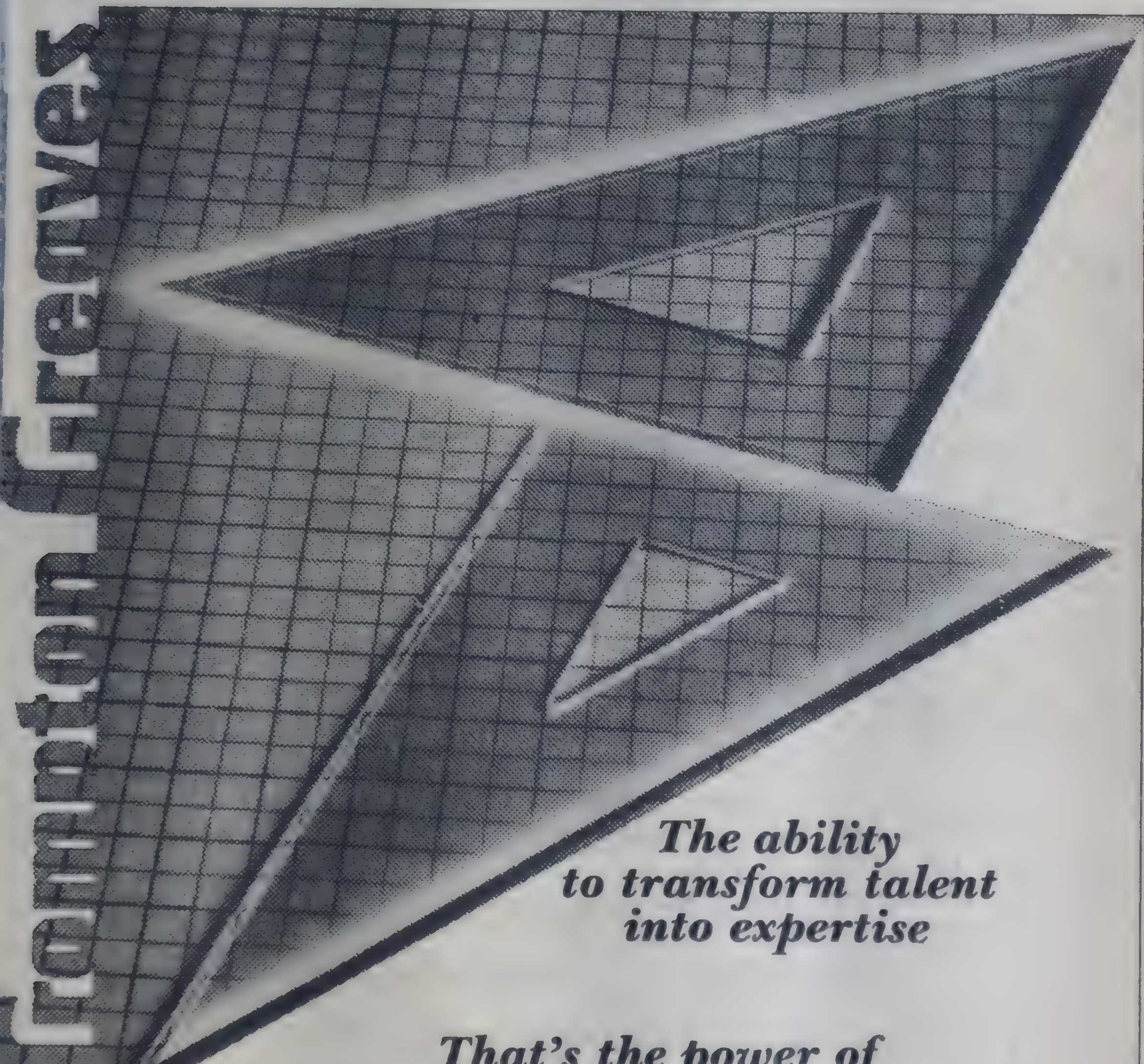

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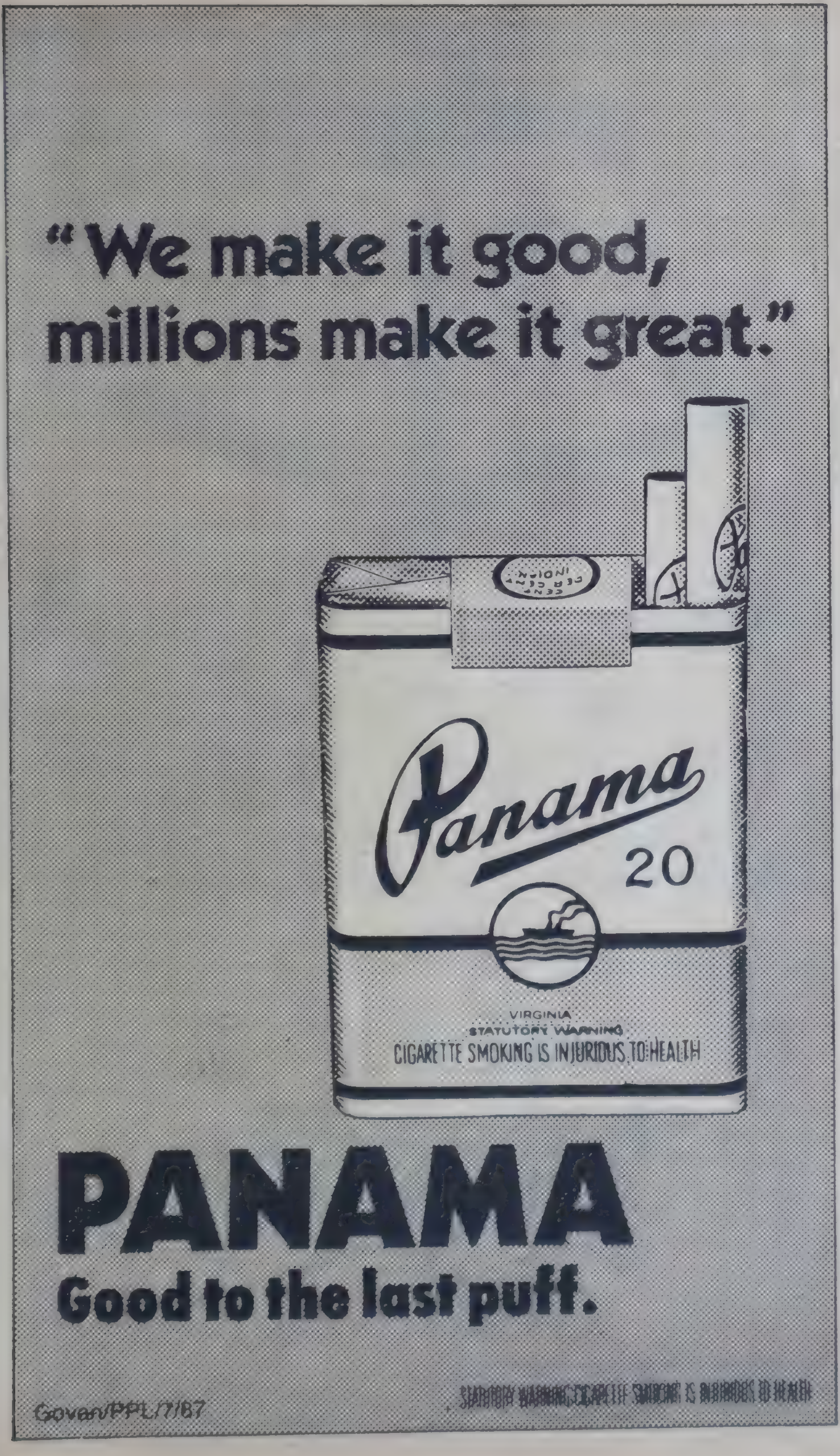
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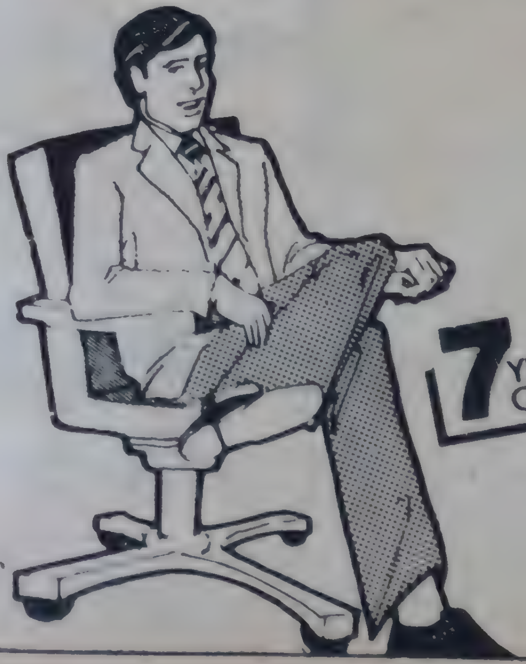

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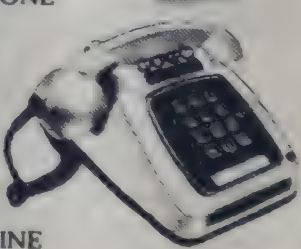

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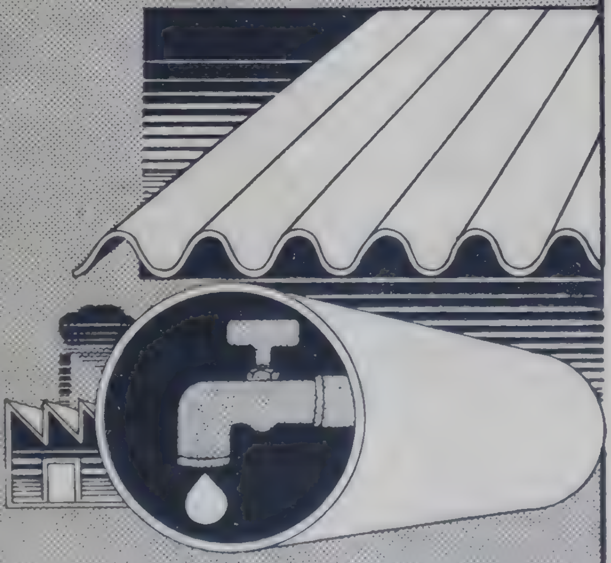

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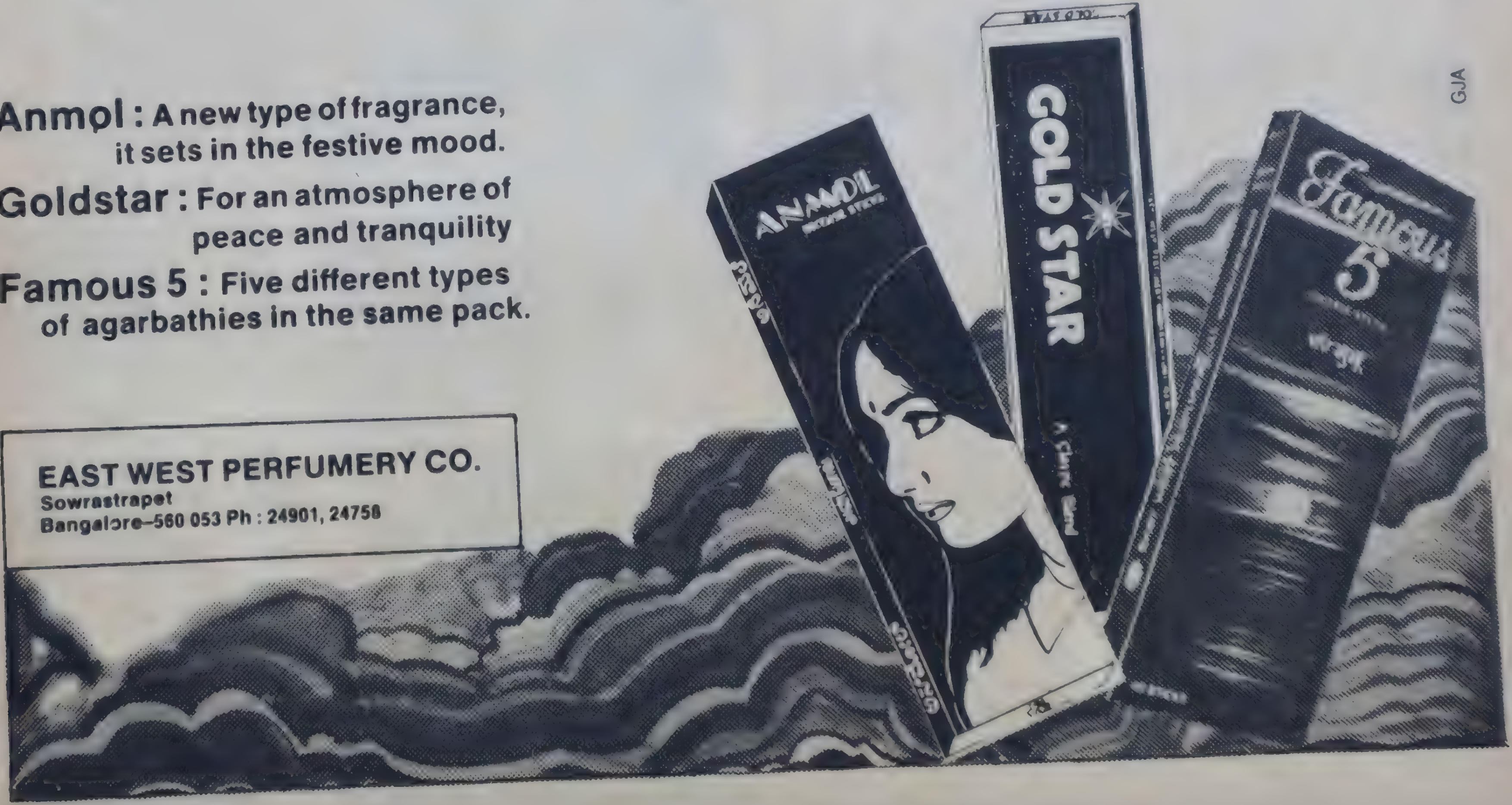
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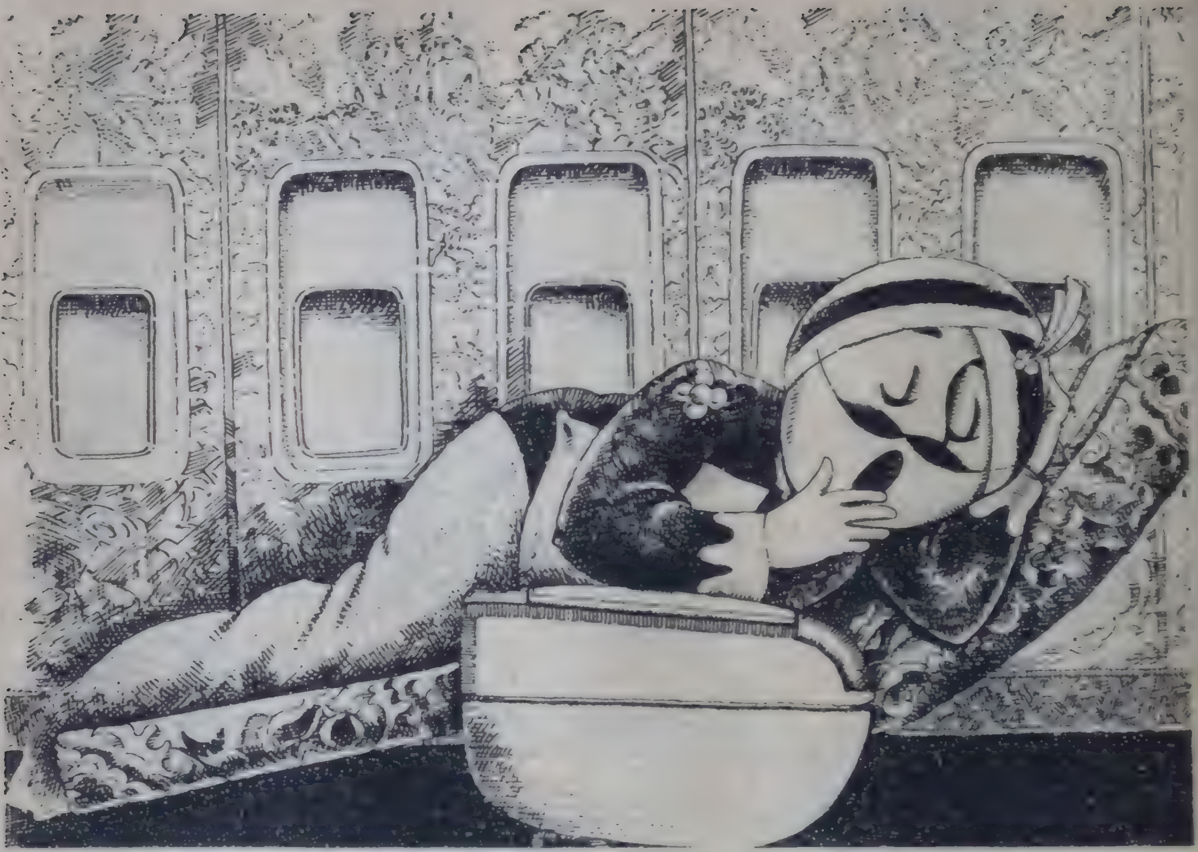

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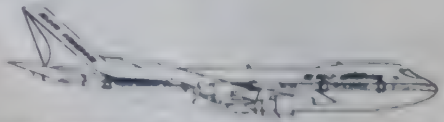

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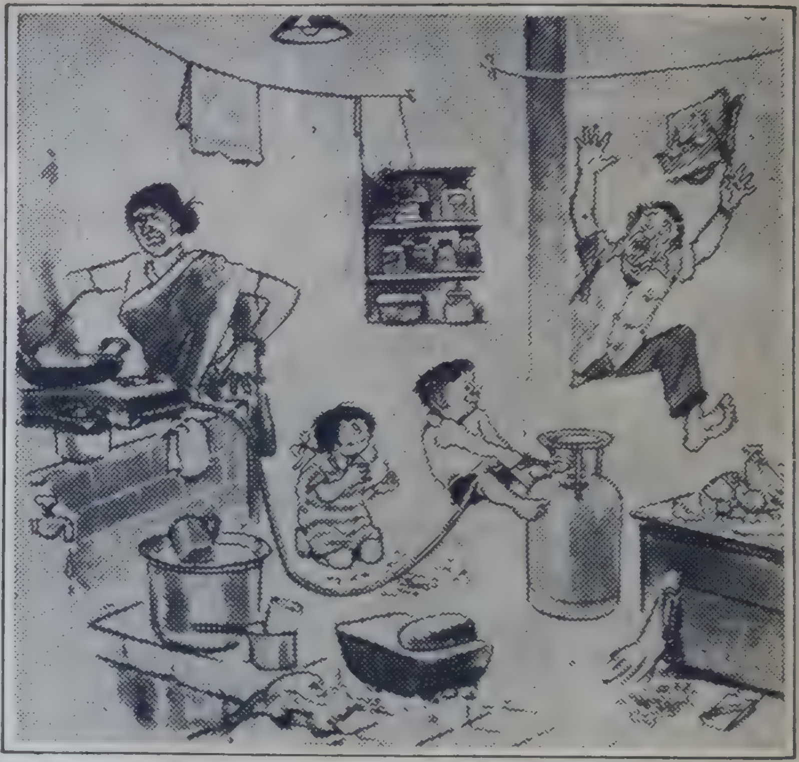

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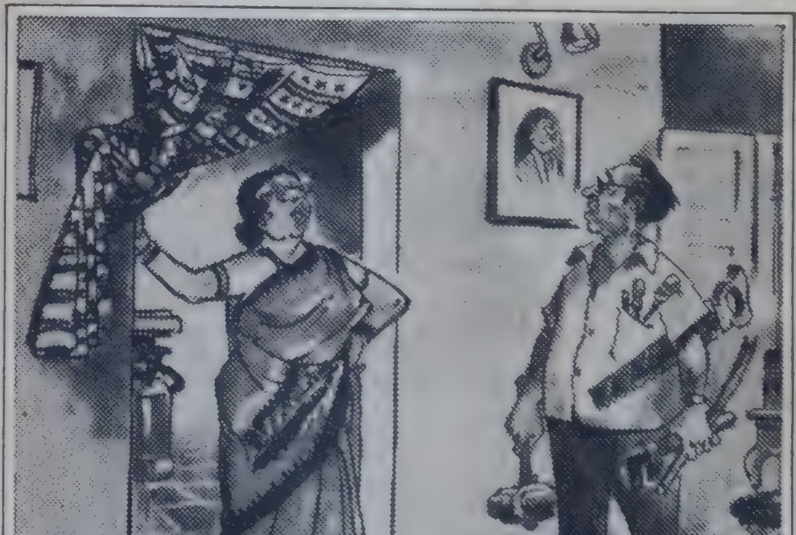

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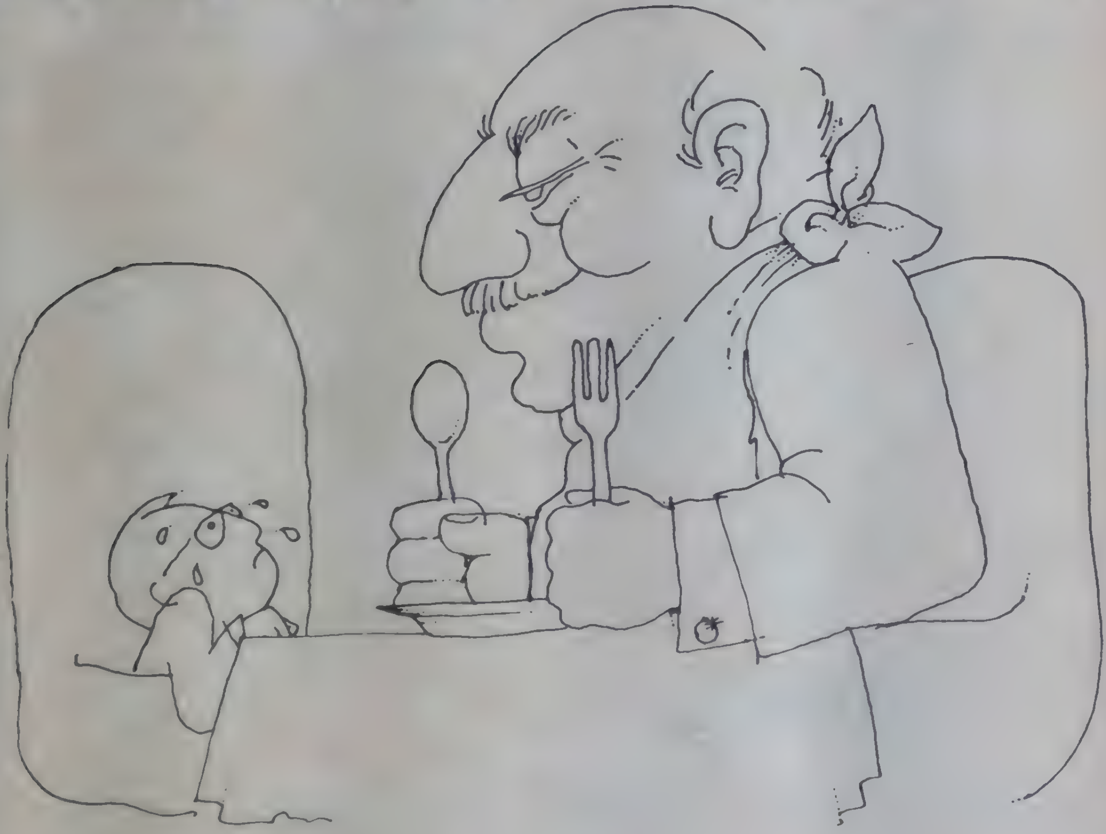

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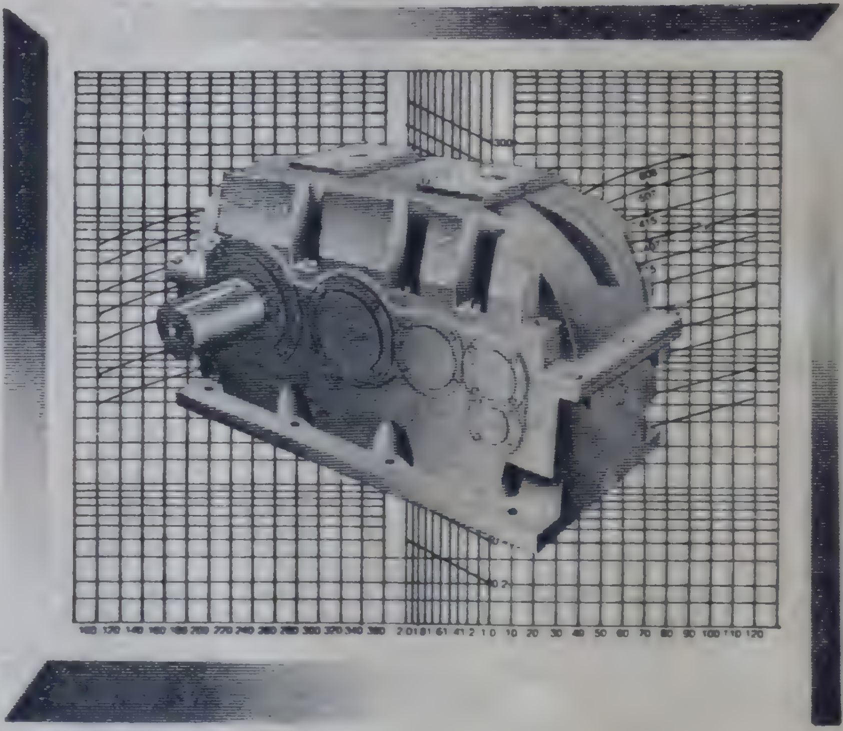
Profitability curves every engineer ought to study



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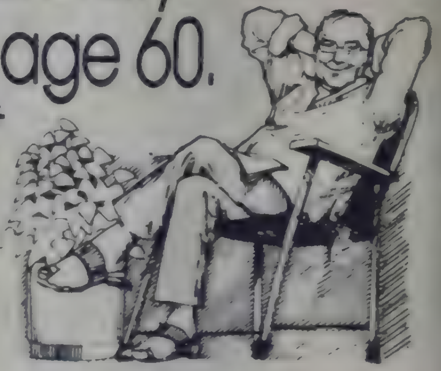

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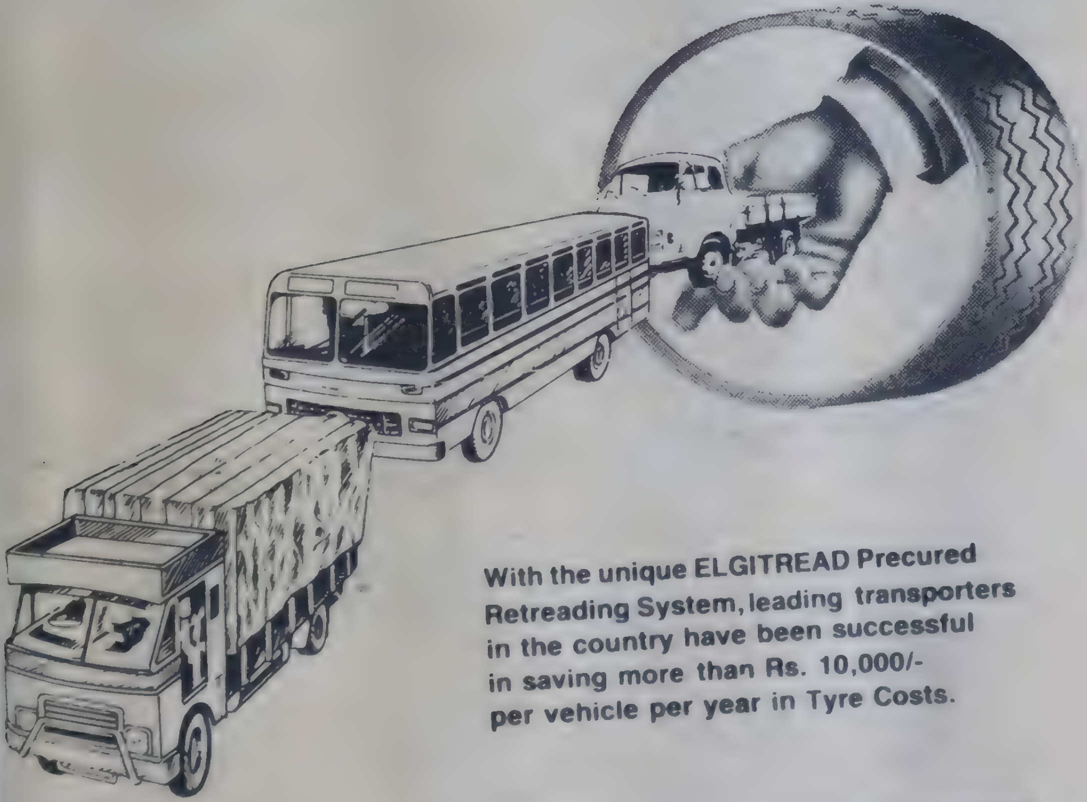

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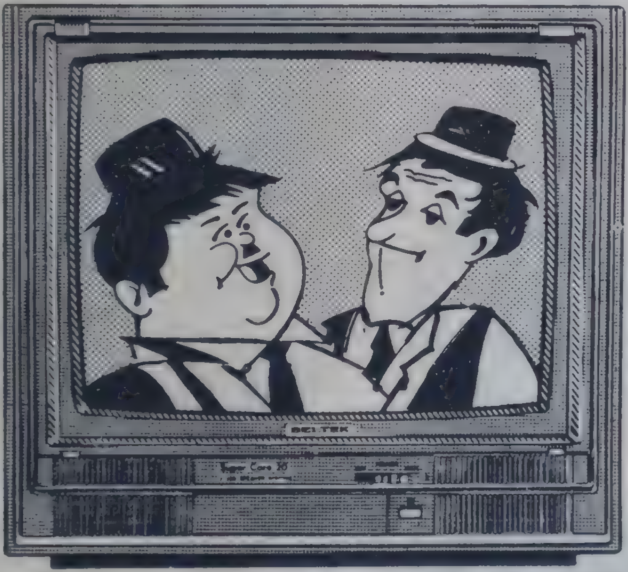

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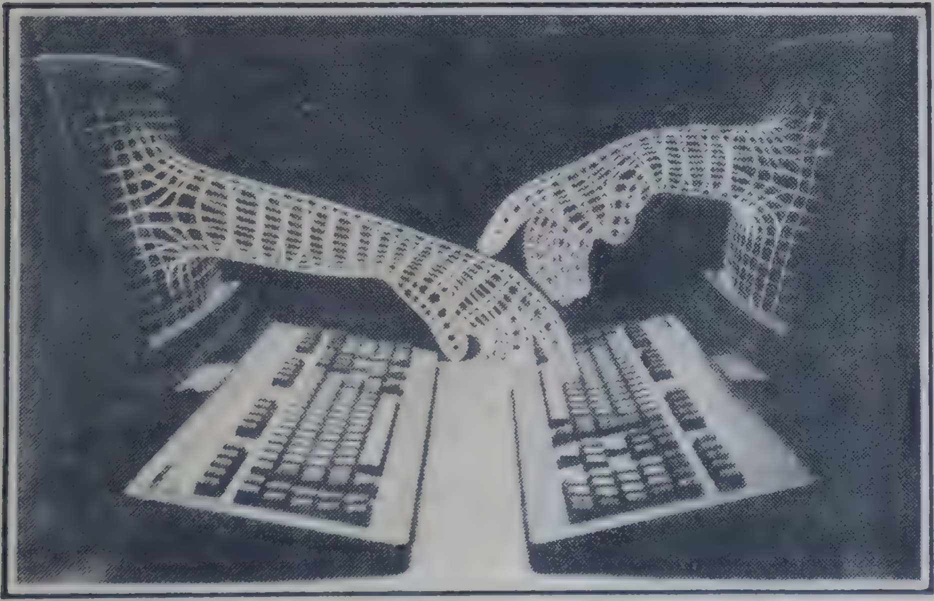


Part One

SCIENCE AND TECHNOLOGY

Life after 2000: Beginning Of a New Millennium

SCIENCE UPDATE

With the start of the third millennium less than 12 years away scientists, historians and philosophers are looking toward the next 1,000 years with a mixture of hope and foreboding.

LIKE some philosophers of old, who thought the battered planet would never see the year 2000, the year 3000 appears almost unattainable to some of today's observers. Hovering ominously over everyone's crystal ball is the threat of nuclear annihilation.

Dr. Jonas Salk, founding director of the Salk Institute for Biological Studies, sees mankind at a historic crossroads, facing for the first time a choice between self-preservation and self-destruction.

"It's as if we're beginning to recognise a new strategy, an evolutionary way of thinking, using the kinds of strategies nature uses to solve problems when limits are reached," he says. "But in this case, the threats we need to overcome are self-induced."

Less optimistic than Salk is *Dr. L. S. Stavrianos,* world historian and adjunct professor at the University of California, San Diego. "The basic problem is that we are in the midst of a tremendous technological revolution that is in need of a corresponding social revolution," he observes.

The history of the world, Stavrianos says, has been marked by a lag in society's adjustments to technological change. This gap, he thinks, is especially dangerous today because of the pace and power of technology.

"For instance, the age-old idea that to keep peace we must prepare for war no longer makes sense," he says. "Scientists have assured us that even limited use of our weapons will mean curtains for the victors as well as the vanquished."

On the assumption that life will not only go on but improve, some scientists foresee previously unimaginable developments on many fronts.

Once scientists have mastered genetic manipulation and can supplement the brain with microchips, the human body itself may be altered in the coming millennium, says *Dr. Richard Jed Wyatt* of the National Institute of Mental Health.

Futurist *T. A. Heppenheimer* suggests that humans eventually may be cloned by dividing embryos at an early stage and freezing one half to be thawed and developed later. Such a mother and daughter would be unusually close, he writes, because "who could be closer than a daughter who is not only like you but is you?"

Scientist-author *Isaac Asimov* advocates settlement of space so that "humanity, or its intelligent descendants and allies, can live on even after the end of the Earth."

Ben Bova, president of the National Space Institute, believes earthlings will have populated much of their part of the galaxy by 3000 and will regularly embark on interstellar flights.

And there's a chance of locating extraterrestrial life — if it exists — in the next 1,000 years. "We've only begun to search, and the power of the equipment doubles every year," says *Dr. Paul Horowitz* of the Harvard-Smithsonian Oak Ridge Observatory, which is looking for life on other planets.

It's unlikely that Earth will collide with another celestial body or get hit by a meteorite. The average time between meteorite strikes is 50,000 years. Asimov says.

This millennium may see the end of some age-old phénomena. Wilde-beest herds, for example, have been rumbling back and forth across Africa's Serengeti for at least a million years, but the New York Zoological Society has questioned whether they'll survive another century in the face of human pressures.

Numerous species of animals and plants around the globe face extinction. But the world's human population is expected to soar, perhaps doubling in only the first 50 years of the millennium and then levelling off.

Traditional ways of governing will certainly change, predicts *Dr. William H. McNeil,* author and history professor at the University of Chicago. And Stavrianos says, "The most successful society of the future will be that which uses the greatest degree of mass participation."

Numerous species of animals and plants around the globe face extinction. But the world's human population is expected to soar, perhaps doubling in only the first 50 years of the millennium and then levelling off.

The big kickoff for the third millennium undoubtedly will be Jan. 1, 2000. But Mathematicians point out that dating, like counting, starts with the number one, not zero. Thus the actual first day of both the new millennium and the 21st century will be Jan. 1, 2001.

No approaching millennium could possibly have catalysed as much speculation as this one. In the underdeveloped Europe of the late 900s, most people weren't even aware of the date. "People didn't know it was New Year's Eve, 999," says *Dr. Avry Andrews,* a history professor at George Washington University. "To the people in France, for instance, it was merely the third year of the reign of King Robert."

The world of 1000 was so different from

today's that now it would hardly be recognisable. "China, India and the Muslim world were rich civilisations around 1000, while Western Europe was a place with an interesting future but really hadn't accomplished much," Andrew says. The mighty Roman Empire had crumbled long before, and high civilisation had receded toward the east.

One of the world's largest cities in 1000 was Constantinople, with a population of at least 300,000. Big cities also dotted China, whose Song dynasty already had produced the compass and gunpowder.

China was producing vast quantities of iron and 'steel and was moving to market system that would increase its wealth, double its population, and make it the world's most powerful and sophisticated nation. Though its power was eventually to fade, China set the world on a 1,000-year exploration of market-regulated behaviour, McNeill says.

Africa and the Americas of 1000 are sketchy in the minds of historians, although the continents contained known peninsulas of sophistication. It was a climatic year for the complex Maya civilization of the Yucatan, and the Cahokia Indians built a large settlement in what is now Illinois that reached a peak population of perhaps 40,000, the largest north of Mexico.

That year also represented the height of Viking exploration of the New World. Leif Eriksson is said to have discovered North America at Nova Scotia about 1000, although word of the discovery didn't reach much of the globe.

Between Asia and the New World lay the soon-to-blossom area now known as western Europe. It was a region of scattered settlements, impenetrable forests and three distinct classes of people; the clergy (less than one per cent of the population); the warriors of the emerging feudal system (about two per cent); and the peasants, who lived in crowded huts and spent their miserable days toiling in fields.

"People liked to ride around on horses and kill things, "Andrews says. "They were illiterate, volatile, superstitious teenagers." Few lived past 30. The peasants' domain was a world in which most babies died young, the starving ate grass and women were yoked to the plough to replace animals lost to winter. "Europe around the year 1000," writes historian Charles T. Wood," was no place for the weak and tender-hearted."

Loosely governing the region was a collection of kings. "Western Europe was a great network of personal power relationships, somewhat like the corporate network of today", Andrews says. The kings were close to illiterate; the only places to learn to read and write were monasteries.

Historians once believed that, as the year 1000 drew near, a general panic over the world's anticipated end seized the European masses. It is now known, however, that there was no mass terror, but that some people thought the millennium might bring realisation of the biblical prophecy of Satan's unleashing, expected to precede Armageddon.

Why was 1000 the significant year? Because of a long-standing belief that the history of the world, like the six days of creation, would consist of six millennia, and that the world had been created about 5,000 years before Christ. Thus, to these believers, the year 1000 represented the beginning of the end.

Later, however, an authority on biblical chronology recomputed the world's beginnings to have been in 4004 B.C. Thus, for those who still believe the world will last for only six millennia, the period around the year 2000 is frightening.

"We are probably in for some intense manifestations of terror as the year 2000 approaches." predicts *Dr. Jaroslav Pelikan*, a professor of history at Yale University. "It's a combination of factors — fundamentalism, a feeling that the world is old and tired and has had its day, and fear of overpopulation and the bomb." The date holds little threat for non-Christians, such as Muslims and Buddhists, who observe different calendars, he points out.

One of the world's largest cities in 1000 was Constantinople, with a population of at least 300,000. Big cities also dotted China, whose Song dynasty already had produced the compass and the gun powder.

Third Millennium Ball

President Ronald Reagan has accepted an invitation. George Bush invited himself. Deng Xiaoping hasn't RSVPed. And Britain's youngest royal, Prince Henry, just is not planning that far ahead.

They are all on the guest list for the ultimate New Year's eve party — a global network of celebrations planned for December 31, 1999, to usher in the third millennium A.D. at sites ranging from the pyramids to Stonehenge and the Great Wall.

The "world Millennium gala ball" is the brainchild of the Millennium Society, an association of some 4,000 "consummate optimists" from 32 countries who see the historic calendar shift as a chance to promote world harmony while having fun.

"It is about hope," the chairman Mr. Ed McNally said, explaining why he and some classmates at Yale University decided to create the society in 1979.

He said the Egyptian government has agreed to let 3,000 revellers celebrate at the great pyramid of Cheops at Giza. The British liner QE2 has been contracted to take them there.

It will leave New York on December 21, 1999 and make a port call at Marseilles to pick up several thousand bottles of champagne donated by the French champagne growers' association.

It hopes to gain permission to hold other events at India's Taj Mahal, China's Great Wall, Britain's Stonehenge, New York's Statue of Liberty and New Zealand's Eden Crater, among other famed locales.

"A multi-sensory experience," said the society organiser, Ms. Laurie Flynn. "Short of giving away the plot, I will say it's a choreography of lasers, video imaging and special effects."

In plain language, she said, that means music, fireworks, light shows, dancing, food and, of course, champagne.

The cost? Impossible to estimate so far in advance, the society says. A detailed estimate is expected in 1997 from the firm of Thomas Cooke, which is handling travel plans.

Although the original idea conceived in 1979 was to hold a reunion of Mr. McNally's class in 20 years, that became a larger enterprise when they realised it would mark the dawn of the third millennium.

"The idea caught their imagination, they developed it and things got rolling and the society was incorporated as a charity in 1983," said Mr. Scott Widmeyer, another spokesman.

Others listed by the society as having accepted invitations are comedians Bob Hope and George Burns, aged 90, who asked if he could bring a date, Robert Gale, the doctor who helped treat victims of the 1986 nuclear disaster in the Soviet Union and U.S. baseball commissioner Peter Ueberroth, who organised the 1984 Olympic Games in Los Angels.

The plan to celebrate the dawn of the third millennium as the year 2000 opens has created a stir among those who insist it really begins in 2001. But the society is sticking to its guns.

While acknowledging that 2001 is correct in the strictest sense — mathematically, 2000 is the last year of the second millennium — Mr. Widmeyer said, most people viewed the year 2000 as the symbolic milestone.

ear of the world's end has cast a steady dow over this millennium, Pelikan says. But ike the predominantly religious fears of the , which envisioned divine intervention, ay's worries focus on the secular nightmare umans unwittingly destroying themselves, possibly with nuclear weapons.

The bomb is only one product of the most frenetic and fruitful millennium in human history. Thanks to improved living conditions and medical advances, life expectancy, about 30 years in 1000, will have doubled by 2000.

The world's population will have grown from an estimated 400 million in 1000 to a projected 6 billion.

(Population growth had a setback in the 14th century when the plague wiped out at least a quarter of the populations of Europe and China; Florence, Italy, for instance, lost two-thirds of its citizens.)

The second millennium's first great burst of development in Europe was launched soon after 1000. The 12th and 13th centuries saw a surge in European art, technology, building, exploring and commerce. Notre Dame Cathedral was built in Paris. The compass, spinning wheel, windmill and watermill were brought into use. Marco Polo travelled to China, and Thomas Aquinas set himself to organise knowledge.

The Industrial Revolution in the 1800s — a major turning point in itself — is seen by some historians as only the beginning of a scientific force that is propelling today's civilization. Quantum physics, is etching an entirely new picture of the material universe.

As the millennium unfolded, it brought an unprecedented shift in world power, from Asia to Western Europe. "Europe was an undeveloped part of the world, to say the least, in 1000," says *Dr. Ross E. Dunn,* past president of the World History Association. By the end of the 19th century, Europe dominated the world, militarily and economically. "No single civilisation had ever achieved anything approaching that, and it may never happen again," Dunn says.

Columbus's discovery of America, unifying the globe, was a key development of the millennium. "Before that, the globe was divided into separate regions and was not a single interacting whole," says McNeill. "The only possible analogy to the discovery of America would be going to space and finding human colonies."

Even music historians look back to 1000 as a turning point, when music consisting of more than one melody at a time appeared. "Within 350 years, music had reached a level of complexity that wouldn't be matched until the 20th century," says Christopher Kendall of Millennium Inc., a Washington, D.C., group that performs ancient music.

The industrial revolution in the 1800s — a major turning point itself — is seen by some historians as only the beginning of a scientific force that is propelling today's civilisation. Quantum physics, for example, is etching an entirely new picture of the material universe.

"The Renaissance was nothing compared to this," says historian Dunn.

(National Geographic)

THE UNIVERSE

The Universe is infinite in time and space. We do not know when it began or when it will end. Of course, human conception of the universe (or space as is now better known) has been changing with the passage of time.

When the universe was first conceived of as an orderly unit, it was called COSMOS, as opposed to chaos, and the studies relating to the Cosmos were known as Cosmogony or Cosmology. Today we speak of them as Space and Space Sciences.

A regular enquiry into the universe was first instituted in AD 140 by Claudius Ptolemy, a Graeco-Egyptian astronomer. He propounded the theory that the earth was the centre of the universe and that the sun and other heavenly bodies revolved around it. There have been several theories since the more important of which are given below:

In 1543, Polish astronomer Copernicus argued that the Sun, and not the Earth, was the centre of the universe. Though the Copernican theory changed the centre of the universe it did not change, its extent. The Copernican universe was still equated with the Solar System. It took another three and a half centuries before our ideas changed further.

By 1805 telescopic studies made by the British astronomer Herschel, made it clear that the universe was not confined to the solar system. The solar system itself was only a part of a much vaster star system called the galaxy. The universe thus became quite extensive comprising millions of stars scattered about the Milky Way. But our vision of the universe ended there.

As the 20th century opened, it seemed that the Milky Way galaxy with its cluster of over a hundred billion stars together with their attendant satellites the Magellanic clouds, actually represented all there was to the universe. In 1925 the American astronomer Edwin P. Hubble (1889-1953) pointed out that there were other galaxies in the universe and that the universe actually consisted of millions of galaxies like the Milky Way. In 1929 Hubble proved that these galaxies are flying away from each other and that the farther they are, the faster they fly. This meant that the universe is expanding like a balloon that is being blown up.

Looking from the Milky Way, we can find our outer galaxies receding at increasing velocities. A cluster of galaxies in the constellation Virgo, some 50 million light years away from us, is seen moving away at about 1200 km per second, while a group in Hydra, 2700 million light years away, is racing off at as much as 57,600 km per second. Our own galaxy, the Milky Way, in comparison, appears to move slowly at a modest speed of 600 km per second.

The tricky question still remains unanswered. If, as Hubble showed, the speed of galaxies increases with distance there must come a point at which galaxies fly at the speed of light. At this point we cannot observe anything. As Isaac Asimov puts it, "From Hubble's demonstration of increasing speed of recession with distance.... it would now appear that at a distance of 12.5 billion light years, galaxies would be receding, relative to us, with the speed of light. Nothing beyond that can be observed. The observable universe has a diameter of 25 billion light years and the number of galaxies it contains is uncertain."

The movement of a star or a galaxy affects its light as seen by an observer. If the star is moving towards the observer, its light will be shifted towards the blue end of the spectrum. If the star or galaxy is moving away from the observer its light will be shifted to the red end of the spectrum. This is known as the *Doppler Effect or Shift*. The Doppler shifts of galaxies show that they are receding and that the universe is in a state of rapid expansion.

Modern theories of the universe are based on this flight of galaxies, that is, on the assumption that matter is in a state of rapid expansion.

Big Bang Theory Challenged

A widely held view, forming a basis for the accepted theories of the evolution of the universe—that the present abundance of helium in the universe is predominantly the product of the primordial process of nucleosynthesis soon after the Big Bang, billions of years ago—may now face a challenge from the observations made by the Infrared Astronomical Satellite (IRAS) put into orbit by NASA in 1983.

The satellite has picked up images of a class of 'red objects' which are dust and gas-rich galaxies with very high luminosities. Their bolometric luminosities (total radiation in the entire electromagnetic spectrum which makes sense only in observations avoiding the atmospheric absorption, such as in satellites) have been found to be 10 to the power of 12 times the solar luminosity. IRAS has identified 10 such objects which radiate intensely in the infrared wavelength regions of the spectrum.

"Genuine primordial galaxies" is what Prof. Geoffrey Burbidge of the University of California, San Diego, U.S., called them, describing one such object—NGC 6240—at the International Astronomical Union (IAU) meeting in New Delhi is Nov. 1985.

These are primordial only in-asmuch as the galaxies, as seen today, seem to be in the stages of thermonuclear processes of nucleosynthesis characteristic of early universe, and are ejecting large amounts, as much as 15 per cent, of helium. Otherwise, they are relatively new events compared to the age of the universe. The radiation is believed to be coming from the heating of the dust and the gas in the galaxy.

It is generally assumed that our universe started out as a superdense ball. It is argued that if the universe is now expanding (as Hubble has shown) it must have been, once upon a time, in a state of high compression. High compression means high density. We have, at present, no means of knowing how high the density of the original universe was.

The nearest guess is that the overall density of the universe, at that time, was comparable to the density of the nuclear fluid, tiny droplets of which form the nuclei of various atoms. It is calculated that the density of the atomic nucleus is a hundred thousand billion times greater than the density of water. If the density of the primordial universe was of this order, it follows that each cubic centimetre of space (universe) at that time contained a hundred million tons of matter.

Abbe Georges Lemaitre, a Belgian astronomer-priest, explained this process of expansion in what is known as *the big-bang theory*. He argued that billions of years ago, cosmic matter (universe) was in an extremely compressed state, from which expansion started by a primordial explosion. This explosion broke up the superdense ball and cast its fragments far out into space, where they are still travelling at thousands of kilometres per second. It is from these speeding fragments of matter that our galaxies have been formed. The formation of galaxies and stars has not halted the speed of expansion. And, as it happens in all explosions, the farthest pieces are flying the fastest.

The primordial explosion is the hallmark of the big-bang theory. It also differs from other theories in two important respects.

This theory originally advanced by two astronomers, Thomas Gold and Hermann Bondi, has since received support from the British astronomer Fred Hoyle. According to this theory, which is also known as the *continuous creation theory*, galaxies recede from one another but their spatial density remains constant. That is to say, as old galaxies move apart new galaxies are being formed in the vacancies. These new galaxies are formed from new matter which is being continuously created to replace old matter that is being dispersed.

An interesting question arises here. How much new matter has to be created to compensate for the dispersion of matter by expansion? George Gamow suggests that if one hydrogen atom per litre of space is created once every billion years, it would be enough to replace matter, which is being lost continuously by expansion. This implies that comparatively very little creative work is involved in replacements.

According to the Pulsating (Oscillating) Universe theory, advocated among others by Dr. Alan Sandage, among others, the universe expands and contracts alternately between periods running into tens of billions of years, Dr. Sandage thinks that some 12 billion years ago a great explosion occurred in the universe and that the universe has been expanding ever since. It is likely to go on expanding for 29 billion years more, when gravitation will halt further expansion. From then on, all matter will begin to contract or collapse upon itself in a process known as 'implosion'. This will go on for 41 billion years compressing matter into an extremely superdense state and then it will explode once again. This is the latest theory of the evolution of the universe.

That the universe is expanding is today considered established. A question that remains unsettled is whether the expansion will continue for ever or whether the receding galaxies will some day stop and then reverse their motion, eventually falling together in a great collapse. The answer to this question determines the geometrical character of the universe, that is, it determines the nature of space and time. If the expansion continues perpetually the universe is 'open' and infinite; if it will some day stop and reverse direction, the universe is closed and of finite extent.

OUTER SPACE

The difference between space and outer space is that space means the whole universe including the earth while outer space means all space other than the earth. In fact, outer space begins where the earth's atmosphere ends and extends on and on in all directions.

Outer space is infinite. Our terrestrial units of measurement hardly suit its dimensions. So

The Ozone Accord

For the first time the world's major producers and consumers of pollutants accused of destroying the *ozone layer,* which protects the earth from the cancer-causing radiation in sunlight, have agreed to cut production and use of the chemicals. But the agreement is not the broad stroke many scientists and environmentalists wanted.

The accord signed in Montreal by 46 industrial nations calls for a freeze on January 1, 1990, of the levels of consumption of chloroflurocarbons (CFCs) prevailing in 1986. Consumption is to be further reduced by 20 per cent by 1994 and by another 30 per cent by 1999.

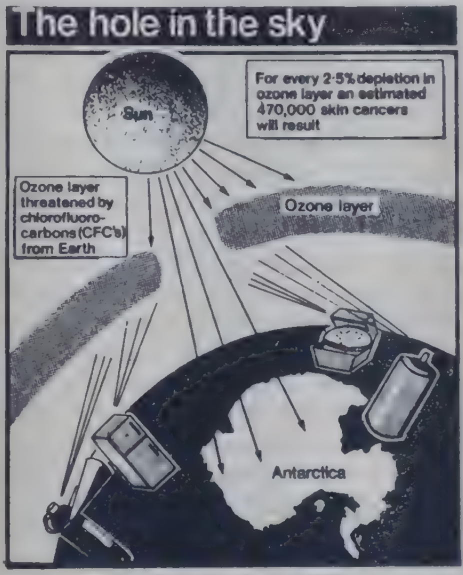
This is a significant step forward, for it means the major industrial producers have at the very least acknowledged the need for action. But there are exceptions to the agreement, which must be ratified by 67 per cent of the participating countries before it takes effect, that boil the accomplishments down to a shrivelied little gain.

Despite the consumption limits agreed by the signatories, they are allowed to increase CFC output by up to 10 per cent over the next 10 years to serve markets in developing countries.

Another exception allows the Soviet Union, which produces about 10 per cent of the world output of the chemicals but consumes much less, to freeze consumption and production at levels prevailing in 1990. The Soviets argued that under their current five-year-plan they had begun building new chemical plants which they were not about to scuttle.

There is also concern that the major industrial CFC producers may set up plants in countries not part of the agreement and begin exporting to customers whose supplies are cut when the production cutbacks take effect.

The accord was signed at a meeting convened by the United Nations Environment Programme. Executive Director Dr Mostafa Tolba has been credited with prodding the participants into taking collective action.


The hole in the sky
Sun
For every 2·5% depletion in ozone layer an estimated 470,000 skin cancers will result
Ozone layer threatened by chlorofluorocarbons (CFC's) from Earth
Ozone layer
Antarctica

Before the conference got underway, Tolba said failure to reach an agreement would be a blow to those who believe governments are capable of setting aside national self-interest to tackle environmental problems that are global in nature.

Yet it was precisely the pursuit of national self-interest that prevented the participants from reaching a much tougher agreement. The US, which for years denied the need for an international agreement, has recently been leading calls for action on CFCs. US officials were recently pressing for an 85 per cent cut in the use of CFCs.

CFCs are found in refrigerator coolants and solvents, in aerosol sprays and plastic foams used to make keep-warm hamburger cartons.

It is thought that the reversal of the US position has a great deal to do with the fact that the American chemical producer DuPont, which is a major producer of CFCs, is now making chemicals that can replace CFCs.

we have evolved new units of measurement like the *Light Year* and the *Astronomical Unit.*

A Light Year is the distance covered by light in one year in vacuum travelling at a speed of 299,792.5 km* per second or about 186,282 miles per second. A light year is thus 5.88 million-million miles.

Astronomical Unit represents the mean distance between the sun and the earth, calculated on the data supplied by radars. This distance–the Astronomical Unit–has now become a key constant in determining distances in the solar system.

A.U. in terrestrial measurements is approximately 93 million (92,857,000) miles or 150 million (149,600,000) km. In terms of space dimensions we may say that a Light Year is made up of about 60,000 A.U.s.

Light and sound are the two principal media through which we gather our impressions of the external world. Light is something we can see (visible) and sound is something we can hear (audible). This was considered an axiomatic truth till the end of the 18th century. As the 19th century broke, this simple belief was shattered. Astronomers and physicists learned that there are invisible lights and inaudible sounds. The first break came in 1800 when the British astronomer William Herschel (1738-1822) discovered infra-red radiation.

When sunlight (white light) is passed through a prism, it is broken up into rays of different colours, like those of the rainbow. Traditionally, seven colours are known, which are epitomised by the acronym VIBGYOR, that is, *violet, indigo, blue, green, yellow, orange and red.* This is called the Solar Spectrum, with the violet colour at one end and the red colour at the other end. In studying the heating effects of the solar spectrum, Herschel placed a thermometer in each of the colours of the spectrum and an extra thermometer outside the spectrum at the red end.

The thermometer outside the spectrum (at the red end) showed a higher degree of heat than any other inside the spectrum. He called these rays *infra-red* (below the red) rays. In 1801 the German physicist Johann Ritter (1776-1810) discovered that the rays outside the spectrum at the violet end broke down silver chloride more quickly than the rays within the visible spectrum. These came to be called *ultra-violet* (beyond the violet) rays. It thus turned out that sunlight formed not only a visible spectrum but also an invisible one.

In 1803 Thomas Young (1773-1829), a British physicist, showed that light travelled in tiny waves of varying wavelengths. The wave lengths were too small to be measured by conventional scales. So Anders Angstrom (1814-1874), a Swedish physicist, evolved a new scale to measure wavelengths. He chose a unit equal to ten billionths of a metre. This has since become known as the *Angstrom unit.* Ten *Angstroms* are equal to a *milli-micrometre* (a thousandth of a millionth of a metre) which in terms of modern SI units is equal to a *nanometre.*

The invisible ultra-violet and infra-red radiations remained inexplicable till James Clerk Maxwell (1831-1879), the British physicist, came out with his *Electro-magnetic thesis* in 1870. Maxwell argued that electricity and magnetism were different aspects of a single electro-magnetic field. Periodical variations in the electro-magnetic field produced electro-magnetic radiations of varying lengths. The visible light is only one part and for that matter a very small part of the electro-magnetic spectrum. He also postulated that there can be other invisible radiations of much shorter wave length than the ultraviolet at one end and far longer than the wave length of the infra-red at the other.

The Maxwellian theory was vindicated when the German physicist Heinrich Hertz (1857-1895) produced electro-magnetic radiations with wavelengths much longer than that of infra-red rays. These wavelengths were at first called *Hertzian waves* but eventually came to be known as *radio waves.* Then in 1895, another German physicist Wilhelm Rontgen (1845-1923) discovered what he called X-ray radiation. The X-ray was later found to be much shorter in wavelength than the ultra-violet.

In 1896, the French physicist Henri Becquerel (1852-1905) discovered the phenomenon of *radio activity* . Becquerel did not at that time know why or in what manner this radio activity took place. Subsequently it was found that this radio activity was caused by the atoms of the heavy metal *uranium* giving off a constant emission of radiation and particles. It was further shown that this radio activity was lso electro-magnetic in nature. Rutherford amed it the *gamma ray*. The gamma ray had wavelength even shorter than that of the -ray.

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* This velocity was accepted as one of the Astronomical Constants by the International Astronomic Union in 1968.

In 1905 Einstein showed that all forms of adiation travelled in wave packets, which cted like particles in some ways. He called hese packets *Photons*. The energy of the hotons increases as the wavelength dereases. The wavelength is related to frequeny, that is to say, the number of vibrations or vaves or cycles per second. The shorter the vavelength, the higher is the frequency and he greater the energy. Thus gamma rays with he shortest wavelength (below 0.01 anometre) are the most energetic. The enery decreases as the wave length increases, hrough X-ray (1 to 0.01 nm), ultra-violet (1 to 00 nanos) visible light in all the colours of the pectrum (400 nanos to 700 nanos) infra-red 700 nanos to 1 millimetre), micro waves (1 nillimetre to 500 millimetres or 50 cenimetres) to radio waves which have the ongest wavelengths (50 centimetres to 3000 entimetres or 30 metres) and the lowest nergy content.

Every object which is at a temperature bove *Absolute Zero* (−273.16°C) radiates hotons of all kinds. The average energy of the hotons emitted increases with the temperaure. We experience this heat during the peak period (noon) in visible light radiation. But even objects which are not hot enough to glow like the sun still radiate quantities of infra-red radiation, for instance, our own bodies. Even objects below our body temperature i.e. cool bodies, radiate micro waves and longer radio waves. These radiations called *thermal radiations* can indicate the temperature levels of the objects emitting them.

Radio waves are the radiations with the longest wavelengths, that is from 50 centimetres to as much as 30 metres. Objects in outer space that emit such radiations are called *radio sources*.

The atmosphere is like a sieve which allows only some wavelengths from outer space to reach us. Sunlight forms one group of waves which come down through the atmosphere. This includes not only the visible light but also a part of the invisible light, namely the near ultraviolet (400 to 300 nm) and the near infrared (700 to 2500 nm). This is one of the windows that open out on outer space.

The other window is called the *microwave window*. It covers all wavelengths from one millimetre to 30 centimetres. The existence of the microwave window was not particularly noticed or studied till 1932 when Karl Jansky of the Bell Telephones announced that he had received radio messages from outer space.

ASTRONOMY

Modern astronomy began with the Italian stronomer Galileo. In 1609 Galileo heard of he telescope made by the Dutchman Hans ippershey. He improved upon it and contructed a similar instrument that could magify upto thirty diameters.

It was this instrument, which was a *refractor elescope,* that opened up the field of optical stronomy. Galileo made several startling iscoveries. He found that the Moon's surface s rugged, and that Pleiades is a group of over 0 stars. He discovered four of Jupiter's moons nd observed the sunspots.

In 1668 Newton invented a new instrument, *he reflector telescope*. In a refractor telescope, ight is gathered by a large objective lens. In a eflector telescope a large curved mirror is sed for this purpose. Both these types of ptical telescopes are still in use.

The invention of the optical telescope was an epoch making event in the history of astronomy. The instrument so caught the fancy of the astronomer and the layman alike, that all advanced countries vied with one another in building bigger and bigger telescopes.

Radio Astronomy came into being in the most unexpected manner. In 1931, Karl Jansky, an American radio engineer working in Bell Telephone Laboratory, noticed a steady stream of radiation coming in from outer space. It is strange that professional astronomers of the time paid little attention to this discovery. However, it attracted the attention of an amateur radio operator in the U.S. Grote Reber, who set out by himself to learn more about this extraterrestrial phenomenon. He worked singlehanded for nearly ten years, studying the sky and analysing radiations. In

1937, he built the world's first *radio telescope* – a 31 feet 5 inches parabolic dish– and set it up in his backyard at Wheaton, Illihois. In 1940 he produced a radio map of the sky, the first of its kind in the world. Thus a new branch of astronomy was opened–Radio Astronomy.

The radio telescope is in many ways analogous with the optical telescope. It consisits of a large metal reflector fitted with an antenna. The metal reflector collects and focuses radio energy on the antenna which can be tuned to any desired frequency. A sensitive radio receiver picks up the radiation from the antenna and records it. This is analysed in a computer and studied.

All types of radiated energy are electromagnetic in nature. They differ from one another in wavelength and frequency. Much of the radiation like X-rays, gamma rays, ultra violet rays and the like are absorbed by the atmosphere and reflected back into space. All the same, a persistent stream of radiation reaches the earth. This includes a steady, weak but quite perceptible background radiation called *continuum radiation* which is being received from all parts of the universe. Recent research has shown that this background radiation may hold the key to the formation and destruction of stars and galaxies.

Largest Telescope

Work is on in full swing for the construction of the world's largest telescope, the Keck telescope, scheduled to take its first look at the heavens in 1990.

Being constructed at Mauna Kea in Hawaii at above sea level it will be unique in more than just its size.

Instead of using a mirror shaped from a single piece of glass, it will combine 36 hexagonal mirror segments to create the equivalent of a single mirror 10 m wide, effectively doubling astronomers' capability to explore the universe.

The telescope's design depends on newly developed mirror manufacturing techniques and a sophisticated control system that twice each second will align the honeycomb mirror array to an accuracy of a millionth of an inch.

The California University will bear the telescope's operating cost of 3.5 million dollars annually.

In the sixties satellite technology took astronomical investigations farther afield. Until then astronomical studies were entirely ground-based. Now satellites made it possible to study astral phenomena from above the atmosphere. Thus astronomy came to be studied from two levels – from the ground and from above the atmosphere. This led to the emergence of many specialised fields in astronomy – X-ray, Ultraviolet, Gamma ray and Infra-red.

Radar astronomy was born in 1940, when a Hungarian physicist Zoltan Bay sent out a beam of micro waves to the moon and detected the echo. It is really a part of radio astronomy since micro waves can rightly be considered a part of the electromagnetic spectrum.

A new generation of "super telescopes" being designed for mountaintops around the world can usher in a golden age of astronomy by the early Nineties.

At least seven mammoth optical telescopes– four on drawing boards in the United States– are now being planned. Each of which will have more than twice the light-gathering capacity of today's biggest devices.

Behind the spurt in jumbo telescopes are several radical new ideas on how to build them. Ever since the dedication of the 200-inch Hale telescope –still the world's premier optical device–atop California's Mt. Palomar in 1948, astronomers thought that they had reached the technical and financial limits of big-telescope construction.

The reason: the mirrors. They effectively determine the power of a telescope. The bigger the reflector, the more light it can collect from objects in space. Yet a mirror much larger than Hale's wouldn't hold its shape because of its weight.

Astronomers have been able to offset this problem somewhat with advances in light - detection systems. Electronic detectors now record more than 60 times the number of photons (massless subatomic particles that transmit light) collected by mirrors than those of 20 years ago. But advances in these systems are fast approaching their limits. Thus the need for bigger telescopes altogether.

One emerging idea is to use many pieces of glass fitted together like a mosaic instead of

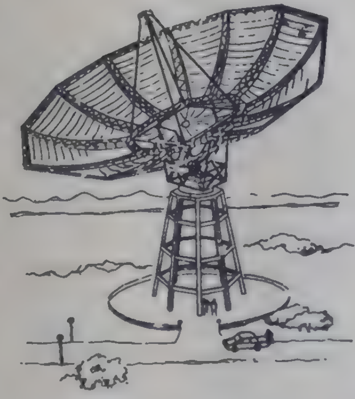
World's Largest Radio Telescope

The Government of India has approved a Rs. 260 million project to build the world's largest and most versatile radio telescope operating at metre wavelengths—the Giant Metre-wavelength Radio Telescope. Construction of the GMRT at Narayangav near Pune is to be completed by 1992. It will be run jointly by the Radio Astronomy Centre of the Tata Institute of Fundamental Research and the Physics Department of the University of Poona.

According to Govind Swarup, Director of the Radio Astronomy Centre: "For a radio telescope of this kind, it is a now or never situation.... In the near future, the only suitable site for it will be the other side of the Moon!" One of the main reasons why such a huge radio telescope has not yet been built in the West is that man-made radio interference is so rampant. The GMRT will be in a location where hardly 100 radios are in operation. It will fill a longstanding gap in astrophysical studies due to the absence of a giant radio telescope operating at this wavelength.

The Y-shaped configuration of the GMRT will be spread over an area of 25 kilometres. Each arm of the Y will be 14 kilometres long with an array of six antennas. At the centre of the Y will be a square, each 1-kilometre side having four identical antennas. These 34 antennas are to be fully steerable parabolic dishes 45 metres in diameter, operating in a tuneable wavelength range of 7.9 to 2 metres with simultaneous reception at 92 and 49 centimetres.

The effective collection area of this highly sensitive telescope, which is likely to resolve radio objects as small as a few arc seconds, will be 60000 square metres. This is about twice the area of the world's largest single radio telescope, at Arecibo in Puerto Rico, and eight times the collecting area of the biggest array, the Very Large Array (VLA) in New Mexico. "This configuration of the GMRT is a marriage of the VLA and the Arecibo," says Swarup, "with advantages of both." But this labour-intensive facility will cost less than a fifth of Arecibo or the VLA.



One of the 34 steerable dish antennas

Some new techniques will be employed to keep the cost of the GMRT low. The reflecting surfaces of antennas will be "see-through" meshes of stainless steel wires which will reduce weight and wind resistance. "We are likely to use technology utilised for suspension bridges and large sports stadium—never tried before for any radio telescope," says Swarup. "Ropes will be used to support the mesh structure. It will be the Indian rope trick in action!" A parallel processing computer system is being developed to compensate for the ionosphere's disturbing effect on metre wavelength radio waves.

When completed, the telescope is likely to search for evidence in support of the big bang model of the Universe, and to throw light on the formation of galaxies and quasars, short period pulsars, flare stars and solar radio bursts. Apart from discovering hundreds of pulsars, the telescope will provide thousands of high-resolution maps of galactic and extragalactic radio sources. "One of the chief aims of the GMRT will be to search for the red-shifted 21-centimetre line radiation of the neutral hydrogen clouds that are expected to have formed before galaxies and their clusters came into being," adds Swarup.

Large Radio Telescopes

Location	Description	Appro. Effective Area in sq.m	In operation since
Jodrell Bank, Manchester, UK	Dia. 76 m Parabolic dish	3.0×10^3	1957
Green Bank, West Virginia, USA	Dia 92 m Parabolic dish	4.5×10^3	1962
Parkes, Australia	Dia. 64 m Parabolic dish	2.3×10^3	1962
Arecibo, Puerto Rico	Dia. 300 m Spherical dish	3.0×10^4	1964
Green Bank, West Virginia, USA	Dia. 42 m Parabolic dish	1.0×10^3	1965
Lake Traverse, Ontario, Canada	Dia. 46 m Parabolic dish	1.1×10^3	1966
Udagamandalam, India	530 m NS×30 m EW Parabolic Cylinder	8.0×10^3	1970
Effelsburg, West Germany	Dia. 100 m Parabolic dish	5.5×10^3	1972
Zelenchukskaya, North Caucasus, USSR	Ratan 600, 895 panels mounted on a circle of dia 576 m.	1.4×10^3	1974

casting a single continuous concave surface. A version of the approach devised by astrophysicist Jerry Nelson and colleagues at the University of California, is to be used in the new Keck Observatory.

This 390-inch telescope is likely to be the first of the new extra-large instruments to come on line. If completed by 1992, as envisioned, the Keck telescope will be the world's largest–nearly twice as big as Palomar and capable of detecting a candle on the moon. Developed by the University of California and the California Institute of Technology (Caltech), it will sit atop koa-studded Mauna Kea, an extinct volcano in Hawaii.

The main mirror of the telescope will contain 36 hexagonal pieces, each 6 feet wide and 3 inches thick. A computerised positioning system will keep them moving in concert with up to 100 adjustments possible each second, down to 1/1000 the width of a human hair. Although not yet tested on a large scale, the "segmented mirror" scheme should yield other benefits as well. Because the mirrors can sit on lighter supports, the 10–metre telescope will probably weigh less than one-third of the Hale telescope. A shorter focal length – and thus a stubbier barrel – will mean that a smaller dome can house it. (Domes can account for one-half the cost of an observatory).

GALAXIES

Galaxies are huge congregations of stars that hold together by force of gravity. They are so big that they have sometimes been called 'island universes'. Galaxies seem to be scattered in space. But there are many clustered into groups.

When the expanding material of the universe broke up in the first instance, billions of islands of gaseous matter were formed in space. These gaseous islands or *Proto-galaxies* rotated, each with its own speed of rotation. Those with very low rotational speeds assumed nearly spherical shapes. Others assumed elliptical forms with varying degrees of elongation, depending on their rotational speeds. Most of these gaseous islands, however had such high rotational speeds that their bodies were flattened out into the shape of discs, from whose edges spiral arms streamed. The centre of the galactic disc was formed by a multitude of proto-stars rotating on regular circular orbits around the centre of the galaxy, whereas the spiral arms were formed by highly diluted, dusty gas streamers which were caught in the general rotation and were twisted into the shape of spirals. The galaxies have thus come out in different shapes and sizes.

As the gaseous islands were settling down, local condensations—*proto-stars* – developed at many points within the galaxy. These condensations began to contract under their own weight into dense gas spheres. As a result of this contraction, the temperature of the gas spheres rose steadily and their heated surfaces began to emit heat waves and then visible light of shorter wavelengths.

As the central atmosphere of these contracting proto-stars reached the ignition point–say 10 million degree centigrade–contraction stopped, thermonuclear reactions began and millions of bright burning globules of gas emerged–the stars. When the stars appeared, the originally cool and dark proto-galaxies were transformed into the bright stellar galaxies that they are today.

A structural analysis of the known galaxies brings out three major forms—*Spiral, Elliptical* and *Irregular*. Spiral galaxies have a central nucleus with great spiral arms trailing round it. The Milky Way and the Andromeda Galaxy belong to this group. A special type of spiral galaxies is what are called *barred spirals* which have a central bar as a nucleus. The spirals comprise some 80 per cent of the galaxies so far known. Elliptical galaxies show purely elliptical shape without any spiral arms. They range in shape from spherical ellipticals to extremely saucer–shaped ones and account for about 17 per cent of the known galaxies. Irregulars, as the name suggests, show no definite geometric pattern or shape.

It has been suggested that irregular galaxies are young galaxies, while spiral galaxies are middle aged and elliptical galaxies old.

Most of the observable galaxies seem to be scattered in space more or less at random but there are numerous cases of galaxies clustering into groups, which may contain as many as several hundred individual galaxies. Our own galaxy, the Milky Way, belongs to a cluster of some 24 galaxies called the 'local group'. This group covers an area of about 3 million light years in diameter.

The two nearest galaxies are the Large Magellanic Cloud and the Small Magellanic Cloud, so called after the world navigator Magellan who first spotted them. The Large Cloud is about 155,000 light years from us with a maximum diameter of some 40,000 light years and contains some 5 to 10 billion stars. The Small Cloud has only a population of 1 to 2 billion stars.

The two largest galaxies in the group are the Milky Way and the Andromeda galaxy, both of them spiral. Andromeda galaxy (M 31) is of special interest to us, because it appears that our galaxy and M 31 are actually approaching each other at a rather modest speed of some 50 km per second.

Thhe Local Group is a term loosely applied to indicate our galaxy and its nearby galaxies. The Group now (1980) numbers around two dozen. Some like the *Maffei* are even suspected to be outside the group.

The latest known member of the group is a *dwarf galaxy* discovered by the Siding Spring Observatory in Australia. It is in Carina and consists of a loose swarm of very faint stars. In appearance it resembles the Sculptor and the Fornax systems. It is estimated to be about 500,000 light years away.

Ten New Galaxies

US astronomers have discovered 10 unknown Galaxies, hidden behind the Milky Way, and expect to detect several thousand more in this region of space.

The discovery, reported at a meeting of the American Astronomy Society, was made by Mr. Frank Kerr of the University of Maryland, using a radio telescope at Green Bank observatory in West Virginia.

Mr. Kerr acknowledged that the 10 galaxies were a mere speck compared to the millions of systems already mapped, and the billions as yet unknown.

However, he said, the discovery was important because it was the first success in a new technique to probe the third of space hidden by the light, gas and dust of our own galaxy.

To find the 10 galaxies, between five and 50 million light years from the earth Mr. Kerr's team monitored radio signals.

THE MILKY WAY

The Milky way is our home galaxy. A peculiar feature of this galaxy is a bright band of light that runs almost in a perfect circle through it. Milky way belongs to a cluster of some 24 galaxies called 'the local group'.

As seen from the earth this band looks like a river of light flowing through the sky. Actually it is made up of millions of scintillating stars which from this distance seem to be placed in close proximity to one another. Modern westerners have called this river of light the Milky Way. The name is now applied to the galaxy as a whole.

The Milky Way had so fascinated our ancestors among all nations that they had given it pretty names and had woven fanciful legends about it. The Yakuts of Central Asia called it 'the footprints of God' and the Eskimos 'the path of white ashes'. The ancient Greeks called it 'the road to the palace of the Heavens', the Chinese, 'the celestial river' and the Hebrews, 'the river of light'. The ancient Indians, not to be outdone called it 'the Akash Ganga' or 'the Celestial Ganges'.

Legend has it, that in response to the insistent prayers of a devotee Bhagiratha, God Siva brought the Akash Ganga down and allowed a trickle of it to fall on the Earth. This trickle formed the earthly Ganga (River Ganges), which thus remains even today, sacred to Hindus all over the world.

The Milky Way is a spiral galaxy. The main body of the galaxy is a disc 100,000 light years across with a globular nucleus of about 16,000 light years in diameter, and far-stretching spiral arms (in one of which our solar system is located). The galaxy consists of over a hundred billion stars rotating about the centre in a stately average period of some 230 million years.

The principal gravitational force that controls this rotation is produced by the star clouds at the centre which have a total mass of about 50 billion suns. The mass of the entire Milky Way is calculated to be a little more than 100 billion times the mass of the Sun.

The stellar population of the Milky Way is made up of three categories of stars. First, there are the stars in the hub and spirals of the Milky Way. The sun belongs to this group of stars. These groups are called *Open or galactic clusters*. Beyond the disc and the open clusters, lie the halo stars. Many of these stars form miniature galaxies, containing tens of thousands of stars. These are called *globular clusters*. They contain very old stars. Beyond the globular clusters there are several million individual stars, that run round rakishly on the outskirts of the Milky Way. All these form part of the galaxy.

The centre or the nucleus of our galaxy is so completely obscured by dust clouds that we cannot learn anything about it through optical telescopes. What little we know about the nucleus has been collected by radio telescopes.

Our galactic nucleus is about 32,000 light years from the Sun. It appears to be a rotating disc of gas. In this rotating disc massive activities are going on. One such scene of activity is very near the centre of the galaxy. Here, new stars are being born continually. The area is already crowded with full grown stars. The stellar density here is of the order of a million stars per cubic parsec (3.26 light years). It means that while we on earth, can see only one really bright star (Sirius) at night, any watcher in the central disc can see a million stars like Sirius, with a total luminosity of about two full moons. That is to say, the centre of our galaxy is perpetually flood-lit.

Dr. Joseph Weber of the University of Maryland thinks that a Black Hole dominates the centre of our galaxy. One of his experiments showed powerful gravity waves emanating apparently from our galactic centre.

STARS

Stars account for 98 per cent of the matter in a galaxy. The rest 2 per cent consists of interstellar or galactic gas and dust in a very attenuated form. The normal gas-density between stars (interstellar gas) throughout the galaxy, is about one-tenth of a hydrogen atom per cubic centimetre (cm^3) volume.

Stars tend to form groups. Lone stars going n their own are the exception rather than the ule in the universe. Single stars do not umber more than 25 per cent of the stellar opulation. Double stars account for some 33 er cent. The rest are multiple stars. Antares in corpio is actually two stars. Capella and Alpha entauri comprise three stars each, while astor consists of six stars.

Stars which appear single to the naked eye re sometimes found to be double stars or inaries in the telescope. These are two stars revolving around a common centre of gravity. They are found in orbital motion round each ther, in periods varying from about one year to many thousands of years.

When the hydrogen in a star is depleted, its outer regions swell and redden. This is the first sign of age. Such stars are called Red Giants. Our star, the Sun, is expected to turn into a red star of this type in another 5 billion years.

Red Giants are appropriately named. They have gigantic dimensions. Betelgeuse, for exameple, has an actual diameter of 300,000,000 miles, about 350 times the diameter of the sun. Mira, another red giant, has a diameter of 400,000,000 miles.

Variable Stars are stars that show varying degrees of luminosity. *Delta Cephei,* the first of this type of stars, was noticed in 1784 by the deaf and dumb English astronomer John Goodriche. He found that Delta Cephei had a regular fluctuation of brightness every 5 days and 9 hours. Stars of fluctuating luminosity, thus came to be called *Cepheid Variables*. In stars of this type, high luminosity fluctuates between periods as small as a few hours to as long as 1000 days or more. Generally speaking, the slower the bright-dull-bright cycle, the higher is the luminosity.

Novae and Supernovae are stars, whose brightness increases suddenly by 10 to 20 magnitudes or more and then fades gradually into normal brightness. The distinction between the two types has not been precisely explained. It would appear that they differ in degree and not in kind. The sudden increase in brightness is attributed to a partial or outright explosion. In novae, it seems that only the outer shell explodes, whereas in supernovae the entire star explodes. Novae occur more frequently than supernovae.

Supernovae are stars whose bightness increases to 20 magnitudes or more. As Prof. C.F. Powell puts it, "The whole structure of the star is blown to pieces, it flares up in brilliance so that its intrinsic luminosity for the first thirty days following the explosion is equal to about 1000 million of our suns."

About one star in 100 explodes like this. In our galaxy of some 100 billion stars, a supernovae explosion may occur once in a hundred years. An exploding star or supernovae releases more energy than a billion suns and ejects a lot of matter into space, at a velocity very near to the velocity of light. Some supernovae may leave a super dense core which rotates at high speed and may thus transform itself into a pulsar.

Four supernovae had been identified in historical times, all before the invention of the telescope. They were noted in 1006, 1054, 1572 and 1604.

The 1006 and 1054 supernovae were identified by oriental astronomers. The 1006 supernova appeared towards the end of April 1006, in the constellation of Lupus. Initially, the star was as bright as Venus. It continued to be visible at night for longer than a year. Although no remnant of this supernova is visible, radio emissions from its remnant were identified in 1965. The 1054 supernova, of which detailed descriptions survive in Chinese chronicles, is described "as a guest star". It is said that his supernova outshone the sun for many days and turned night into day. The Crab nebula is taken to be the remnant of this supernova.

The supernovae of 1572 and 1604 were noted by two European astronomers, Tycho Brahe and Johannes Kepler. According to Tycho, the 1572 supernova was brighter than any other fixed star and even brighter than Jupiter. The remnant of this supernova was not traced until 1952. Later, the remnant was located as a strong source of X-rays. The supernova of Kepler (1604) attained a brightness equal to, if not greater than, that of Jupiter. It was visible by day for a month and by night for a whole year. The remnant of this supernova has also been identified as a radio source.

The most recent supernova explosion in our galaxy took place in 1700 in the constellation of Cassiopeia. Strangely enough, this explosion had not been noticed by any astronomer. This supernova was identified in 1948 from its relic, an intense radio source named Cassiopeia A.

SOLAR SYSTEM

The solar system is centred in the Sun. The Sun is the head of a family of 9 planets—*Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune* and *Pluto*—, not less than 46 satellites accompanying the planets, hundreds of asteroids and thousands of comets.

The Solar system is tucked away in a corner of the Milky Way at a distance of about 30,000 to 33,000 light years from the centre of the galaxy.

The solar system originated in a primitive solar nebula–a rotating disc of gas and dust. It is from this rotating disc that the planets and the rest of the solar system evolved.

The term *planets* is derived from the Greek word *planetes*, meaning wanderers. Unlike the stars, which are visible in their fixed positions in the sky always, the planets shift their positions and sometimes even disappear from view. Therefore they came to be called planets or wanderers. The first known planets were named after the Roman gods– *Mercury, Venus, Mars, Jupiter* and *Saturm*. The other planets, when they were discovered later, were also named according to the old pattern– *Uranus, Neptune* and *Pluto*.

The planets are divided into the inner planets and the outer planets. The inner planets are Mercury, Venus, Earth and Mars. The Earth is the largest of the inner planets and the densest of all planets. All the inner planets are dense rocky bodies and are collectively called terrestrial planets, because they resemble the Earth. The outer planets, Jupiter, Saturn, Uranus and Neptune are very big, with large satellite families. They are composed mostly of such elements as hydrogen and helium. These planets are called Jovian, after Jove, the Greek name for Jupiter, because they resemble Jupiter in many things. All of them rotate furiously, wear dense atmospheres and consist of far lighter elements than the earth–like–or terrestrial inner planets.

The outermost planet Pluto is in a class by itself. It is supposed to be a dense planet like the inner planets, although it is the farthest of the outer planets.

Rotating on their own axes, the planets revolve round the sun in long elliptical orbits.

THE SUN

The Sun is one of the stars in the Milky Way. Modern estimates place the Sun at a distance of about 32,000 light years from the centre of the galaxy. The Sun and the neighbouring stars generally move in almost circular orbits around the galactic centre at an average speed of about 250 km per second.

The Sun at this rate takes 250 million years to complete one revolution round the centre. This period is now called a *cosmic year*.

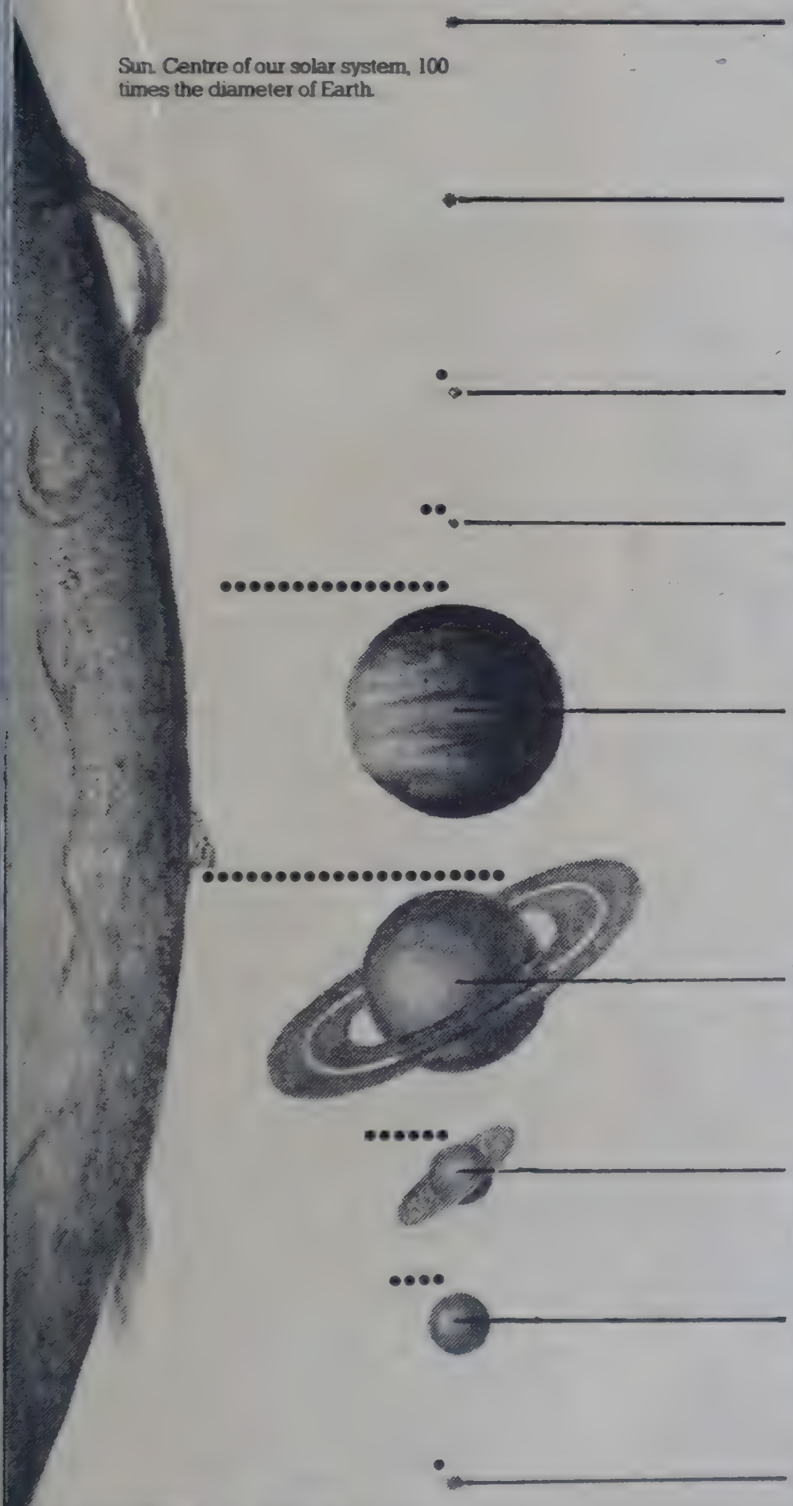
Like all other stars, the Sun is composed mainly of hydrogen. Its energy is generated by nuclear collisions in its interior. It is calculated that the sun consumes about a trillion pounds of hydrogen evey second. At this rate, it is expected to burn out its stock of hydrogen in about 5 billion years and turn into a red giant. The prospect is frightening.

When the sun turns into a red giant, it will have swelled a hundred times in diameter and increased a thousand times in brightness—bright red. It will then occupy about 25 per cent of the horizon. The nearest planets, Mercury and Venus, will melt. The oceans of the earth will evaporate and disappear. The earth will remain a barren rock, heated to the melting point of lead. All life on earth will cease. The Sun will survive as a red giant, for about a hundred million years more, slowly dissipating its enlarged outer shell leaving a tiny core. This core will be a faint, white dwarf-sun no larger than the present planet Mars. Around this tiny star, the burnt-out earth will continue to revolve.

The glowing surface of the sun, which we see, is called *Photosphere*. Above the photosphere, is the *Chromosphere*, so called because of its reddish colour. Beyond this layer is the magnificent *Corona* of the sun which is visible during eclipses.

Between the chromosphere and the corona, spectroscopic investigations have identified a

THE PLANETS' POSITIONS IN SPACE



Sun. Centre of our solar system, 100 times the diameter of Earth.

Mercury. Diameter 4,880 Km (3,030 miles) Nearest planet to the Sun-57.9 million Km. (36 million miles)

Venus. Diameter 12,104 Km (7,521 miles) Lies 108.2 Km (67 million miles) from the Sun.

Earth. Diameter 12,756 Km. (7,296 miles). Has one satellite, the Moon, and is 149.6 million Km (93 million miles) from the Sun.

Mars. Diameter 6,787 Km (4,200 miles). Last of the rocky planets; has two satellites and is 227.9 million Km. (141.5 million miles) from the Sun.

Jupiter. Diameter 142,800 Km (88,700 miles). Separated from Mars by a vast belt of asteroids. It has at least 16 satellites and lies 778.3 million Km (483.5 million miles) from the Sun

Saturn. Diameter 120,000 Km (75,000 miles). Circled by at least 21 satellites; lies 1,427 million Km (885.5 million miles) from the Sun.

Uranus. Diameter 51,800 Km (32,200 miles). Lies 2,869.6 million Km (1,782.5 million miles) from the Sun and has six satellites.

Neptune. Diameter 49,500 Km (31,000 miles). With its four satellites it lies 4,496.6 million Km (2,800 million miles) from the Sun.

Pluto. Diameter 3,000 Km (2000 miles). one satellite. The outermost planet, averaging 5,900 million Km (3,600 million miles) from the Sun

•represents number of satellites

distinct, very narrow boundary zone known as the transition region. The temperature of the photosphere is about 11,000°F, that of the chromosphere about 18,000°, that of the transition region about 180,000°, and that of the corona, which extends far into space, about 2,700,000°, hot enough to emit X-rays. (The density of the gas in each layer decreases with increasing altitude, just as the earth's atmosphere thins with height. The corona, accordingly, is the least dense of the Sun's layers)

At the core of the sun where thermonuclear reactions take place the temperature level is around 15 million degrees K. The density at the core is estimated at a hundred times that of water. Outside the core is the convection zone. Here, like the boiling water in a kettle, turbulent motions of gases transport the energy that is generated in the core towards the photosphere.

The visible white light of the corona is made up of a continuum of colours, such as violet, indigo, blue, green, yellow, orange and red. Super-imposed on this continuum are hundreds of dark lines called the *Fraunhofer lines*. Each line indicates some element present in the solar atmosphere. The intensity and width of the lines reveal the temperature and density of the element.

The sun is constantly emitting streams of its substance (mainly hydrogen) as protons (nuclei of hydrogen atoms) in all directions. Sometimes these emissions are massive. They are then seen as *prominences* which send huge bouts of incandescent material upward from the sun's surface. Sometimes these eruptions roll out of the atmosphere of the sun for many miles, when they are seen as solar *flares*. The solar flares are spectacular–hot ionised gas rolling out as enormous clouds, 20 to 40 times the size of the earth at speeds of around 100 km per second through Corona the outer layer of the sun's atmosphere. Some of the most spectacular solar flares seen in recent years occurred on Feb. 28, 1942, Nov. 19, 1949 and Dec. 13, 1971.

A less spectacular but persistent stream of protons is blowing out of the corona and sweeping over the whole solar system. In 1958, the American physicist, Eugene Norman Parker, called this outward stream of protons the *solar wind*. Recent researches through satellites have shown that the solar wind is made up of a plasma, that is, ionised gas, mostly hydrogen and helium, containing nearly an equal number of protons and electrons. It flows outward from the Sun at supersonic speeds, around 400 m a second. Apparently, this wind sweeps through the whole solar system to a distance of 40AUs from the Sun which coincides with the very limits of the planetary orbits.

Owing to the sun's rotation, the solar wind travels in spirals and carries with it magnetic fields. The Earth's magnetic field–the magnetosphere–acts as a shield against the ever-blowing solar wind and deflects it away from the earth. Nevertheless, particles of solar wind sometimes pierce the magnetic shield and enter the upper atmosphere, where, like the solar flares, they cause auroral displays.

The solar wind distorts the shape of the magnetosphere. The magnetosphere extends to a distance of 64,000 km above the earth–10 times the radius of the earth. On that part of the earth exposed to the sun (the sunlit side), the solar wind sweeps along the magnetosphere past the earth. On the other side of the earth (the night side), the solar wind converges again and compresses the magnetic field into a plume or tail, more or less like what it does to comets. The tail thus formed extends to over six million km on the night side of the earth. The particles of the solar wind and also those from the deep space are trapped in the tail and travel back and forth endlessly.

Sunspots are dark patches noticed on the surface of the sun. They appear dark because they are cooler (around 1500°C) than the surface of the sun which has a temperature of about 6000°C. The largest spot ever measured (April, 1974) covered 7000 million sq. miles or approximately 0.7 per cent of the sun's visible surface. The life periods of these spots also vary. They may last from a few hours to many weeks.

They show strong magnetic fields and reach a maximum every 11 years. During the maximum of a sun-spot period, the sun shows marked activity in shorter 'Wave lengths' like X-rays and ultraviolet radiations. Frequent solar eruptions and solar flares occur. These produce great reactions on the earth and its atmosphere such as ionospheric disturbances, magnetic storms, interruptions of radio communications, unusual auroral displays and a lowering of the average cosmic ray intensity.

Solar Statistics

* Distance from the Earth	149.8 million km.
Absolute Visual Magnitude	4.75
Diameter	1392000 km
Core Temperature	15000000 K
Photosphere Temp.	5770 K
Rotation as seen from the Earth	25.38 days (at the Equator) 33 days (near the poles)
Chemical Composition	Hydrogen 71% Helium 26.5% Other Elements 2.5%
Age	About 5 billion years
Expected lifetime of a normal star.	About 10 billion years

** The mean distance from the Earth to the Sun (159 million km) translated into flying hours means that a jet aircraft capable of 1000 km/hr. would need more than 17 years of non-stop flying time to reach the Sun.*

Polar Auroras are two auroras, the *Aurora Borealis* or Northern Lights and the *Aurora Australis* or Southern Lights. These are lights that sweep across the sky in waves or streamers or folds. They are very often multi-coloured and provide one of the finest spectacles in nature. They occur in the Arctic and the Antarctic regions respectively. But the Northern Lights can be seen as far south as New Orleans in America and the Southern Lights as far north as Australia.

The auroras are chiefly caused by sunspots, which are magnetic storms on the surface of the sun. These storms discharge electrified particles into space. The Earth's magnetic poles attract these particles. Consequently, the north and south poles are the radiating centres of these electromagnetic displays.

The electrified particles from the sun cause gases in the upper atmosphere to vibrate and glow in colours peculiar to them, just as a neon sign glows when electric charges pass through it. The causal relation between sunspots and auroras has been doubted, because the interval between the two was always erratic and never uniform. This has now been explained by the discovery of the magnetosphere.

The magnetosphere is the earth's magnetic shield. It was at first called the *Van Allen Belts* after the American physicist, James Van Allen who discovered them in 1959. Van Allen in analysing the data from the earlier Explorer and Pioneer rockets found two belts of high intensity radiation in the upper atmosphere. Pioneer 12 later showed that these belts were a part of a larger band of radiation called the magnetosphere. It extended far out to about 40,000 miles from the earth's surface.

Here the protons and electrons that shoot out from the sun are caught and held by the magnetism of the earth. The upper belt with its centre, some 1500 miles from the earth, does not touch the atmosphere.

THE PLANETS

Mercury is the planet closest to the Sun and the smallest. It was believed that the period of Mercury's rotation on its own axis corresponded with its period of revolution, like that of the Moon. Recent radar readings, however, have shown that Mercury rotates on its own axis in 58.65 days while it takes 88 days to complete one revolution round the Sun.

This means that Mercury spins three times (3×58.65 days) for every two revolutions (2×88 days) round the Sun. The result is that when Mercury is in the most favourable viewing position, we see nearly the same face with the same markings. This is how the mistaken notion that its period of rotation is the same as its period of revolution arose.

According to Gerard Kupier, Mercury originally was probably twice as massive as it is today but the Sun evaporated away half of its substances. The lighter, more volatile elements escaped, leaving a heavy planet, that is probably about 30 per cent metals. It is 5¼ times as dense as water. Even today Mercury bathes constantly in the ferocious heat of the Sun. When it is closest to the Sun, temperature reaches 650°F on the equator though it probably drops during the long night to minus 300°F.

It is doubtful if Mercury has an atmosphere. With low gravity (one-third of the Earth's) and high temperatures, atoms and molecules of almost all gases must have escaped into the interplanetary space leaving Mercury devoid of atmospheric gases.

Venus, the planet closest to the Earth, is also the brightest object in the sky, barring, of course, the Sun and the Moon. Named after the Roman goddess of beauty, Venus is popularly known as a star—as the *Evening Star* and the *Morning Star*. It is slightly smaller than the Earth, being some 300 miles less in diameter. Venus, unlike most other planets, rotates backward. Because of the combination of the slow backward motion and the 225 days it takes the planet to make one orbit round the Sun, Venus sees the Sun rising in the west every 117 days.

Many of the popular notions regarding Venus have been radically altered by the space probes of Venera 4 (Oct. 1967), Venera 5 and 6 (May 1969), Mariner 2 (Dec. 1962) and Mariner 5 (Oct. 1967). These probes have proved that Venus is a very hot planet—possibly the hottest of planets. Its temperature at the equator may go as high as 1000°F. At such a temperature, lead, tin and zinc will melt and a number of compounds will vaporise. But at the top layers of Venusian clouds temperature drops to minus 35°F. Here, we have a very interesting phenomenon—a red hot planet wrapped in clouds of ice, with freezing temperatures above and boiling temperatures below.

A curious feature of Venus discovered by the Russian Venera series 7 and 8 is that both the night and day temperatures are nearly the same. This means that heat is being transported from the day side to the night side. Strong winds in the higher atmosphere seem to be the carriers of heat.

While the highest clouds on the Earth seldom go above 10 miles, Venus has a thick layer of clouds, about 35 miles high. They block much of the sunlight.

The atmosphere of Venus is also unique, consisting as it does almost entirely of carbon-dioxide (90-95 per cent). It has a pressure of a hundred terrestrial atmosphere (100 times the pressure of the Earth's atmosphere). This is equal to the pressure of water more than half a mile under the sea.

Venus has no satellites like Jupiter, no rings like Saturn and no ice caps like Mars. It has a very weak magnetic field, 3/10,000 of the Earth's magnetic field and has no radiation belt like Van Allen Belt.

The Earth

(See the Earth)

Mars, named after the Roman god of war, is the fourth planet from the Sun. When Mars is favourably situated it is brighter than most of the stars and is definitely red, which has earned for it the surname the Red Planet. Mars has polar caps similar to those of the Earth and because the Martian axis is tilted at almost the same angle as the Earth's, its polar regions are exposed to sunlight in alternation, giving each hemisphere summer and winter.

The relative orbits of Mars and the Earth bring them very close—a little more than 35 million miles—on two occasions about 2 years apart and then remove them far apart for another 15 years. In September 1956, Mars paid one of its close visits to the Earth and the next in 1971.

The pictures that Mariner 9 has sent down show that Mars is internally alive and more like the Earth than the Moon, with volcanoes, greater than any on the Earth, canyons and dusty basins, jumbled uplifts and fractures.

Mightiest of the Martian mountains is *Nix Olympica* (the snow of Olympus), a volcanic mountain that embraces a vast caldera or crater 40 miles across. It is the highest point on Mars, standing some 15 miles above the plain, nearly three times as high as Mount Everest.

The Viking mission to Mars in 1976 was intended to find out if there were any signs of life on Mars. Viking I landed on Mars on July 20, 1976 and Viking II on Sept. 3, 1976. The experiments conducted by them have shown that there is no sort of life on Mars.

Mars has two small satellites, which have been named *Phobos* (Fear) and *Deimos* (Terror), after the legendary attendants of the war god, Mars.

Jupiter is the giant among the planets. Its mass is 71 percent of the total mass of planets. It has one and a half times the volume of all the other planets combined. But its mean density is only one-fourth of the Earth's—a low value characteristic of all the Jovian planets.

Jupiter appears to have stopped halfway to becoming a star. It was too massive to solidify as a planet but not massive enough to develop 'nuclear fusion' and become a star. It has thus come to possess both stellar and planetary characteristics. Jupiter's star-like features are two. It gives off more energy than it receives from the Sun – two or three times as much. All planets draw from the Sun whatever energy they possess. Jupiter also emits random bursts of intense radio energy at long wave lengths. It is the most powerful radio object in the solar system, next to the Sun. No other planet is known to possess radio energy of its own. In all other respects Jupiter resembles the other planets.

Much of Jupiter's mass is made up of atmosphere 25,000 miles deep. The atmosphere consists largely of hydrogen and helium which explain the low density of the planet—roughly one-fourth of the Earth's density. Methane and ammonia which are formed when hydrogen joins with carbon and nitrogen respectively are also present in the atmosphere. It is thought that the Jupiter has the primordial atmosphere of the Earth–hydrogen, methane, ammonia and water-from which life originated on Earth. It is quite possible that a similar process of life has started on Jupiter.

The atmosphere of Jupiter is marked by a series of stripes which go round the planet. Astronomers have counted 5 bright stripes and 4 dark gray stripes.

Jupiter is hot inside. At the core, temperature may go up to 25000°C which is more than four times the surface temperature of the Sun (6000°C).

Jupiter has 16 satellites. The biggest four satellites Io, Europa, Ganymede and Callisto, were discovered in 1610 by Galileo. They are now collectively called Galilean satellites. The 14th planet discovered in 1979 is the smallest of the satellites. It has tentatively been named 1971 J1. It is only a few dozen km in diameter and is about half-way between the surface of Jupiter and the orbit of Amalthea. Amalthea and the four Galilean satellites travel in circular orbits around Jupiter. The remaining satellites are much smaller and travel in irregular orbits.

Saturn is the outermost planet visible to the naked eye. With a rocky core of the size of the Earth, Saturn is the second largest planet (next

Two More Planets

How Many planets are there, Nine, ten or eleven?

Astronomers in 1987 announced the discovery of two more planets in addition to the already known nine -- Sun, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune and Pluto.

The tenth one - unnamed - is orbiting the Sun between 16,000 and 32,000 million kms away. Five times as massive as the Earth, it takes at least 700 years to make one round of the Sun.

Mercury, Venus, Mars and Pluto are small planets like the Earth. But the new one is as large as Uranus and Neptune.

While this was announced by NASA scientist John Anderson, European Astronomers Dr. Richard West and Dr. Lutz Schmadel announced the discovery of a minor planet that was lost 50 years ago.

The planet named Mally *orbits the Sun once every four years and 84 days in a path between Mars and Jupiter.*

Pluto discovered in 1930 was the last of its kind known till date. Uranus was discovered in 1781 and Neptune in 1846.

According to noted Indian scientist Dr. J.J. Rawal *of the Nehru Planetarium, Bombay, the latest findings are only the confirmation of his own discovery about a decade back. They were recorded in his research paper published in the* Bulletin of the Astronomical Society of India, *1978.*

Dr. Rawal is also credited with the discovery of rings and satellites around Jupiter, Saturn, Neptune, Uranus and Sun which had been later corroborated by Pioneer *and* Voyager 1 *and* Voyager 2.

to Jupiter) but the least dense. It has a density of only 0.69 less than that of water.

Compared to its neighbour Jupiter, Saturn looks unexciting. The two planets are considered very similar–giant balls of hydrogen and helium with hot interiors that provide much of the heat that drives their winds and determines their weather. However, Voyager I has shown that Saturn does have a minor version of Jupiter's Great Red Spot. It has also white ovals and bands of lighter and darker clouds like Jupiter's. Both planets have strong Jet Streams racing round their Equators. Saturn's Equatorial jet is, however, three times broader than Jupiter's. Its winds are three times stronger too – at speed of a thousand miles an hour.

The most spectacular feature of Saturn is its system of rings. This has mystified all astronomers from Galileo downwards. The discoveries of Voyager I have only deepened the mystery. Says Bradford Smith, the leader of the team that scans Voyager images, "The mystery of the rings keeps getting deeper and deeper until we think it is a bottomless pit." The Voyager has upset practically all notions of Saturn previously accepted as correct.

Saturn has the biggest family of satellites – a total of 21. Of these 10 were known by 1976. The others were identified by earth-based telescopes and Voyagers I & II from 1979 to 1981.

Titan, Saturn's biggest satellite, is known to have an atmosphere. But since Titan is covered up by dense clouds, it is not possible to see what its surface looks like. Titan's atmospheric pressure is 1.6 times that of the Earth. Titan's diameter is also found to be only 5140 km, much lower than the previous estimates.

Uranus is not visible to the unaided eye, but may be seen through good field glasses. It has six satellites, *Ariel, Umbriel, Titania, Oberon* and *Miranda*. All of them are comparatively small.

In 1977 astronomers aboard the Kupier Airborne Observatory found that Uranus is surrounded by a system of five very faint narrow rings. These rings named Alpha, Beta, Gamma, Delta and Epsilon were at distances of 27860, 28460, 29670 and 30090 miles respectively from the centre of Uranus. The four inner lines – Alpha, Beta, Gamma and Delta– are each about 8 miles wide while Epsilon is many times broader.

All rings are well inside 40,000 miles from Uranus, which is the Roche's limit for Uranus, that is, the limit within which a large satellite would be torn apart by tidal forces.

Uranus was identified as a planet in 1781 by William Herschel and has completed only two revolutions round the Sun since its discovery. This chill methane planet is 14½ times as massive as the Earth and has a temperature of about 170°C. It takes some 84 terrestrial years to circle round the Sun and its day is 10 hours 49 minutes. The equator of Uranus is tilted at 98° to the plane of its orbit with the result that it practically rolls on its sides as it revolves round the sun and exposes its polar regions (north and south) to whatever light and warmth the Sun gives in periods of 42 years each.

Neptune, between 2900 and 2700 million miles from the Earth, is also visible through good field glasses.

The planet was discovered in 1846, as a result of calculations made independently by two astronomers, Adams in England and Le Verrier in France. These calculations gave the position of an unknown planet which was responsible for the perturbations in the motion of Uranus. The planet was found on 23rd Sept. 1846 in the neighbourhood indicated by Gottfried Galle of the Berlin Observatory. It appears to be a pale green orb, no brighter than an 8th magnitude star.

Neptune has four satellites. Of these *Triton* goes round in a retrograde orbit.

Pluto the outermost planet and removed from the earth by a distance between 4700 and 2700 million miles is visible only through a telescope. This planet was finally located in February 1930 after a long arduous search by C.W. Tombaugh at the Lowell Observatory, Arizona, (USA).

Pluto is a tiny sphere, a little larger than Mercury and revolves eccentrically between 4600 and 2700 million miles from the Sun. It has one satellite. Its orbit is interlaced with that of Neputne. This has led some astronomers to believe that it is "a run-away" satellite of Neptune. An existing Neptunian satellite Triton, also appears to have escaped Neptune's hold in the first instance, but has been brought back. This is supposed to be the reason why Triton goes about in a retrograde orbit, opposed to that of Neptune.

THE MOON

The Moon is the only satellite of the Earth. But it is a satellite of distinction. For, it is the only satellite in the solar system far too big to be a satellite. All other satellites have sizes below ⅛ the size of mother planets. But the moon is about ¼ the size of its mother planet, the Earth.

The incompatibility of the relative sizes of the Earth and the Moon, and their separate existence at such close quarters led to the conjecture that the Moon is not a true satellite but was captured by the Earth during a close approach to the Earth. This theory known as the *Spouse Theory* states that the Moon came from elsewhere in the solar system and sweeping too near, it was snared by the Earth's gravity and "married"- that is, locked into orbit. The second theory known as the *Daughter Theory* says that the Earth once rotated so rapidly that it became blimpshaped and was torn into two, the smaller blob, entering into orbit as the Moon. The third theory–the *Sister Theory* –suggests that the Earth and the Moon were formed more or less at the same time from the original wheeling cloud of cosmic gas that ultimately condensed into the planets and the satellites.

The Moon has a diameter of 2159 miles as against the Earth's 7900 miles. But it has a surface less than half that of the Atlantic Ocean. Therefore its gravitational pull is about one-sixth of the Earth's. Because the orbit of the Moon about the Earth is not circular but elliptical, the maximum distance (apogee) which the Moon may keep from the Earth is 252710 miles and the minimum distance (perigee) 221463 miles. The Moon revolves round the Earth in 27⅓ days (27 days 7 hours 43 minutes and 11.47 seconds) and rotates on its own axis in exactly the same time. This is why we see only one side of the Moon.

To our unaided vision the near side (front side) of the Moon seems to be made up of bright and dark patches. The bright parts are the mountains and highlands that catch the Sun's rays, while the darker patches are low-lying plains. These were once thought to be seas (marias) and named accordingly, though the Moon is devoid of water. The craters are depressions caused by the onslaught of meteors. They vary in size. As if to make up for lack of oceans such as we have on Earth, the Moon has raised high sharp-peaked mountains, many of them rising to 20,000 ft. The highest of these are Liebnitz Mountains, near the Moon's south pole, which rise to 35,000 ft.—higher than Mount Everest.

The Moon has no atmosphere, as its gravitational power is too weak to hold down gases. This causes many strange phenomena. There is no twilight, the day dawns suddenly, as there is no atmosphere to be lit up before the Sun comes over the horizon. There is no sound either, as sound is a vibration transmitted through air.

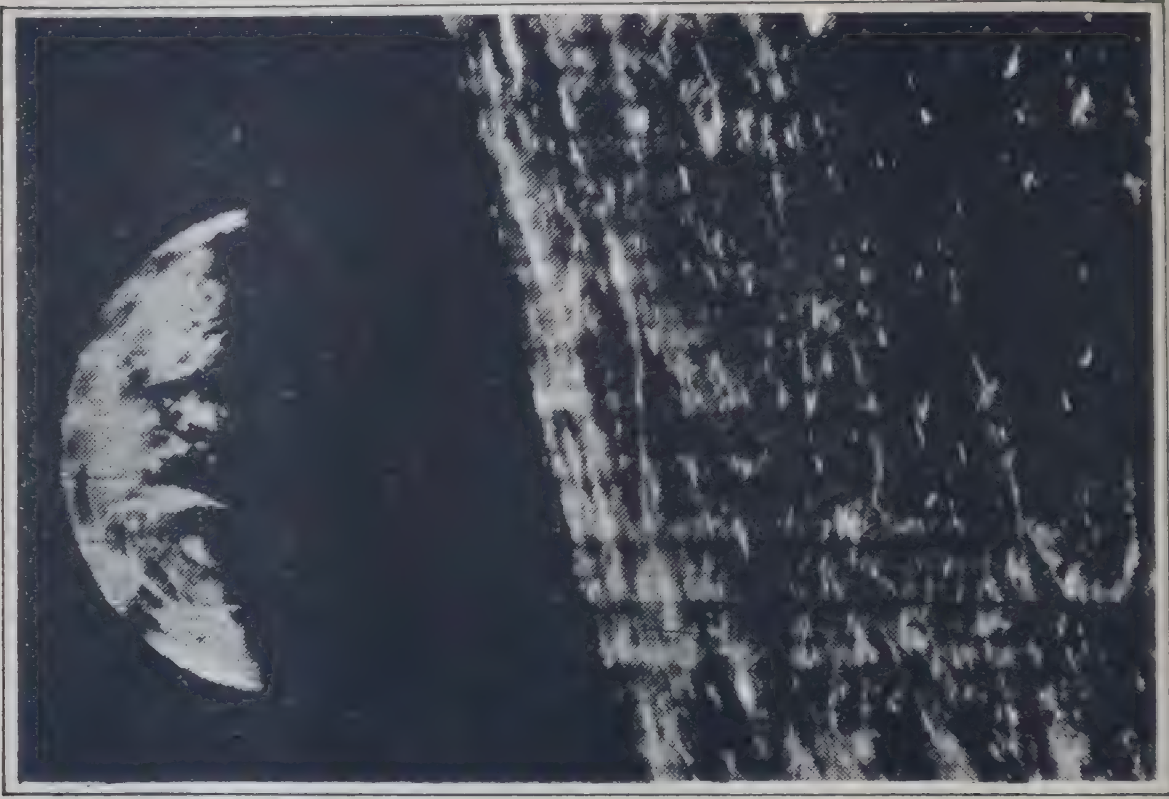
Temperature on the Moon reaches extremes. During daytime the temperature rises to 100°C, at night it comes down to minus 180°C.

The Moon along with the Sun is responsible for the tides. The Moon, being nearer to the Earth than the Sun, exerts a greater influence on the tides. It takes only 1.3 seconds for moonlight to reach the Earth, whereas sunlight takes as much as 8 minutes 16.6 seconds to reach us. This being so, the ratio of lunar and solar power for tide-raising is 11 to 5.

Apollo XI which landed two men on the Moon in July 1969 has blazed a new trail in man's exploration of space. It has enabled man to step on to the surface of the Moon–a possibility that the wildest legends of early times had discounted. USA has followed up this initial success by Apollo XII, Apollo XIV, XV, XVI and XVII.

Meanwhile, USSR sent up the unmanned Luna 16 (Sept.12, 1970) and Luna 17 (Nov 19,1970). Luna 16 picked up Moon soil samples and returned to the Earth on September 24, 1970. Luna 17 carried the Moon buggy Lunokhod 1, which roved the surface of the Moon. It was an eight–wheeled vehicle, which carried apparatus to study the lunar surface and radioed back the results to the Earth.

All these manned landings on the Moon and the investigations of the unmanned spacecraft like the Lunas, haven't solved the lunar puzzles. The question of the origin of the Moon and whether it is a daughter, sister or spouse of the Earth still remains unsettled.



How cloud-bound Earth looks to an astronaut orbiting round the Moon's far side.

However, the oldest rocks and soil samples brought back by the Apollo astronauts have shown that the Moon is about the same age as the Earth and was formed about 4600 million years ago.

Among the 6 Apollo missions that actually landed on the Moon, the first two were confined to the maria or low-lying portions and the others to highlands and areas of varied terrain like rills (narrow valleys). The Apollo missions have brought back nearly 800 pounds of lunar rocks which are being analysed and studied.

The most striking aspect of the Moon's appearance is the abundance of craters on its surface. They range in size from circular basins 1000 kilometres (about 620 miles) in diameter down to craters measuring less than a few metres or feet across. The majority of these craters have been produced by a continuous rain of meteorites over the eons.

The earth has also been subjected to meteoric bombardment, but the erosive action of winds and water, volcanic activities and earthquakes have obliterated evidences of meteoric impact on the Earth. Because these forces are absent on the Moon's surface, the lunar surface has preserved a record dating back to the time of the Moon's formation.

The first landing sites (Apollo 11 and 12) were *mare* areas. The rocks from this area turned out to be basaltic lava, similar to volcanic rocks found on Earth.

Moon's Size and Motions

Mean distance from the Earth	238,855 miles
Diameter	2159.9 miles
Diameter in terms of the Earth's diameter	0.27250
Mass in terms of that of the earth	1:81.30
Density in terms of water	3.34
Density in terms of the Earth	0.6058
Ratio of gravity to gravity at the Earth's surface	0.166
Fraction of Moon's surface always invisible	0.410

A surprising finding was the occurrence of a high percentage of titanium. While terrestrial igneous rocks contained only about 1 per cent of titanium, the lunar rocks showed 10 times as much. A few minerals unknown on earth were found in the mare basalts. Among these is *Armalcolite,* a new name derived from the names of the astronauts-*Armstrong, Aldrin* and *Collins* and the name of the area *Tranquillititis.*

The lunar rocks were bone-dry, with no trace of water in any form. Neither did they contain any trace of any organic matter. So also, volatile elements (elements with low boiling points) like Sodium, Potassium, Chlorine, Germanium, Lead and Mercury were practically non-existent. The depletion of Sodium and Potassium is significant, because these two are among the most abundant elements found in terrestrial rocks.

The oldest rock recovered from the Moon was found at *Descartes* highland where Apollo 16 landed. It is 4.25 billion years old. On our present evidence this may be taken as the earliest date on which the surface of the Moon solidified.

Moonquakes as recorded by seismometers left by the Apollo Missions, run into hundreds. Some are the results of meteor impacts, others are landslides of the inner slopes of craters. But many are true lunar quakes. The magnitudes of these quakes, however, go up only to 2 on the Richter scale with 1.5 the smallest tremor that can be felt.

One peculiarity of these moonquakes is that they occur most often when the Moon approaches closest to the Earth.

COMETS

The word Comet is derived from the Greek *aster kometes* meaning long–haired star. The long hair is the tail which looks like hair blowing in the wind. The head or the *coma* is the star.

Comets have been associated with disasters from the earliest times. It is not known how comets alone, of all astral bodies, came to be treated as portents of evil.

Most astronomers have now come to believe that comets are primordial remnants of the formation of the solar system. They have their home in the cold outer fringe of the solar system away from the outermost planet. In this cold dark domain, where the Sun looks no brighter than a distant star, millions of cometary nuclei are congregated. Most of them are a mile or so in diameter though some may reach diameters of 50 miles or more.

Here, the comets are non-luminous and have no tails and move slowly in enormous orbits around the far distant Sun. But now and then, gravitational changes (e.g. the gravitation of the stars they pass by) shake out some comets from their slow orbits. Some of these move out into the interstellar space and are lost to the solar system. Others move into the solar system eventually to become the brilliant long-tailed comets that we see from the Earth.

Structurally, a comet consists of three parts, a nucleus, a head and a tail. The *nucleus* is a tiny object, only a few kilometres in dimensions. It is made up of ice contaminated with various compounds like ammonia and dust and gas. It reflects sunlight and appears as a bright spot in the centre of the head. The *head* is comparatively big extending up to a million kilometres. It is made up of gas and microscopic dust particles. The *tail,* which is the distinguishing feature of the comet, is much larger than the head, extending to a length of 20 to 30 million kilometres.

The comet does not possess its typical head and tail when it is far away from the Sun. The head appears when it comes near Jupiter's orbit, and the tail develops when it crosses the orbit of Mars. The evaporation of the solid ice material around the nucleus, when the comet approaches the Sun, is responsible for the appearance of the head. At the same time, solar wind is driving away the gaseous matter attached to the head. This explains the streaming tail.

A comet may have three kinds of orbits. If the comet approaching the Sun does not have enough speed to overcome the Sun's gravity, it will settle down in an *elliptical* orbit like our Earth. A comet which has just enough speed to counter-balance the Sun's gravity will take on a *parabolic* orbit. If a comet is fast enough to overcome the Sun's attraction, it will describe a *hyperbolic* orbit and escape into interstellar space.

Comets that keep re-appearing in the solar system are said to be *periodic* comets. As they come near the Sun, they whip around it at enormous speeds and shoot away from the Sun, with their tails pointing ahead.

The periodic comets are divided into two categories, the short period group and the long period group. The short period group has periods of less than 200 years each. The long period groups have periods going up to thousands of years.

Halley's Comet, named after the English astronomer Edmund Halley, reappears every 76.3 years. The Great Comet of 1811 comes back once in 3000 years, the comet of 1844 in something more than 100,000 years while the comet of 1864 takes as much as 2,800,000 years to return.

It is estimated that the solar system may contain as many as 100,000 comets. But most of these stay at home, so to speak. Only very few comets stir out into interplanetary space and move around the Sun. Till 1974, according to an official catalogue, starting with Halley's Comet in 87 B.C., 611 comets were reported. Out of these, 513 are long period comets and the remaining 98 are of short period. Sixty-five of these have been sighted more than once since they were noticed first. The most frequent visitor is Encke, first seen in 1786. Its period is so short (3.3 years) that it has returned 65 times since then.

SPACE EXPLORATION

Space exploration is almost three decades old now. It started with Russia's 'Sputnik' and America's 'Explorer'. Man reached Moon in 1969 to walk on lunar soil. Then came the Space Stations called the 'Skylab' and the 'Salyut'. Man learned to walk in space without tethers and retrieve and repair lost satellites.

Space travel has opened up a new dimension in man's study of the Universe. Astronomers can now photograph in close-up the Moon and planets, which 20 years ago they could only see dimly through the dense blanket of the Earth's atmosphere. Even though observatories have been established on mountains 2,000 m.. (6,600 ft) or more in height astronomers on Earth are still hampered by the blurring and filtering effect of the atmosphere that remains above the mountains. Only by going into space can they achieve the clearest view of the sky, and also detect radiations, such as X-rays and ultra-violet light, that are blocked by the highest levels of the atmosphere.

Because space satellites make it possible to detect radiation from outer space at wavelengths formerly out of range, astronomy is undergoing a revolution similar to that which followed the invention of the telescope. Most spectacular of the new objects being studied are the pulsing, bursting, and erupting sources observed by X-ray satellites, caused as matter pours from ordinary stars on to small, compressed *Neutron Stars* or, in some cases, *Black holes*, orbiting them.

The Space age began on October 4, 1957, when Russia launched *Sputnik 1* into orbit, and this was followed a month later by *Sputnik 2* which carried the dog *Laika*. Measurement of the animal's heartbeats, temperature and other reactions, radioed to Earth, suggested that human beings might also survive prolonged periods in space.

The first US satellite, *Explorer 1*, did not follow until January 31, 1958, but its instruments made the first major discovery of the space age - the Van Allen radiation belts around the Earth, where electrons and protons from the Sun are trapped by the Earth's magnetic field. Soon after, probes were sent to explore the Moon and planets, and on the way they detected the *Solar Wind* of sub-atomic particles streaming from the Sun.

Mankind's first look at the Moon's far side came with the pictures from the Russian *Luna 3* in October 1959. The US *Mariner 2* in 1962 flew past Venus, confirming both its high temperature and the reverse direction of its rotation which had been suspected by astronomers. In 1965, *Mariner 4* sent back remarkable photographs revealing craters on Mars. The work of the early space probes has been extended and improved by later planetary explorers, culminating in remote-controlled landings on the Moon, Venus and Mars – the last in a search for the possibility of life.

Ariane Puts Europe Back in Lead

The successful launching of an Ariane-3 rocket in September 1987, put Europe back in the lead of the lucrative commercial space market.

"We're all wearing smiles," said Frederic d'Allest, president of Arianespace, the commercial arm of the European Space Agency. "A failure would have been a heavy blow."

The rocket, grounded for 16 months after two successive failures, placed a European and an Australian communications satelite into orbit about 20 minutes after lift off at 0045 GMT on September 16 from a launching pad in Kourou, French Guiana.

The fiery exhaust from the 160 foot (49-metre) high, 240-ton Ariane brightened the evening sky over the humid savanna between the jungle and the Atlantic Ocean, where the 13-nation European Space Agency has its launching base just north of the equator on the northeast shoulder of South America.

The performance of the Ariane mission puts Arianespace in a position of world leadership in delivering commercial payloads to orbit. Arianespace, founded in 1980, promotes itself as the "world's first commercial space transport company."

Since the loss of the space shuttle *Challenger* last year, the United States has been without a commercial launching capacity. Since then, the Reagan administration has barred NASA from soliciting commercial customers for the shuttle, which is not expected to begin flying again before next June at the earliest.

Close to the heel, the United States used unmanned Delta rockets to loft a few medium-weight military payloads, and the U.S. Air Force aggressively moved to order dozens of new Titan rockets. But none of these rockets will be available for commercial use.

Of the present contracts, 21 are for European satellites, both for commercial customers and for the European Space Agency's sceince missions. Nine are for launchings of American private satellites, mainly communications satellites. Other customers include communications organizations, Canada, Australia, India and Japan.

SPACE FIRSTS

- First man to propound the space flight laws: Sir Issac Newton (1642-1727) in his book 'Mathematical Principles of Natural Philosophy'.
- First artificial Satellite put into orbit: USSR's 'Sputnik' ('Fellow Traveller'), Launched on October 4, 1957 and weighing 83.6 kg., it attained an altitude of 2285.9 km at a velocity of 28565 km/h.
- First Manned Satellite: USSR's Col. Yuri Gagarin took off in a 4.65-ton space vehicle 'Vostok' ('East') on April 12, 1961 to complete a single orbit of the Earth in 89.34 Mins.
- First woman in Space: USSR's Lt. Col. Valentina Tereshkova went to space in 'Vostok 6' on June 16, 1963. She completed 48 orbits in 2 days 22 hr. 42 min. Svetlna Savitskaya of USSR became the 2nd woman on Aug. 19, 1982 and Sally Ride of U.S. the 3rd woman on 18 June, 1983.
- First 'Walk' in space: Astronaut Edward H. White floated free outside the space vehicle, 'Gemini IV', for 21 minutes on June 3, 1965.
- First Indian to reach space: Sq. Ldr. Rakesh Sharma in joint Indo-Soviet flight on 3rd April 1984.

Probes are now swooping closer to the Sun than ever before to study solar activity, while others are pushing the boundaries of exploration out to *Jupiter* and beyond. Plans are being made to intercept one of those ghostly wanderers of the solar system, the comets.

Manned Missions account for only 3% of the 2,400 or so spacecrafts which were launched in the first 23 years of the space-age. The first man to be launched into space was the Russian *Yuri Gagarin* who orbited the Earth once on April 12, 1961. Later Russian cosmonauts, including the first space woman, *Valentina Tereshkova*, (June 16, 1963) were able to stay in orbit for up to five days.

American astronauts made more modest flights in their smaller *Mercury* spacecraft, but in 1965 began the series of two-man *Gemini* flights that overtook the Russian lead in the space race. The team of astronauts in the Gemini programme practised rendezvous manoeuvres, docking procedures and space walks in preparation for the coming *Apollo* missions to the Moon.

In a Gemini capsule the astronauts had less space than in the front of a small car. The three-man Apollo, however, was relatively roomy, with sufficient space for the crew to move about and even to stand upright. The vital part of Apollo so far as landing on the Moon was concerned was the four-legged *Lunar Module*, in which two men touched down on the Moon. *The first Moon landing, by Neil Armstrong and Edwin Aldrin from Apollo 11, took place on 21 July, 1969.*

A total of 12 Americans walked on the Moon during the Apollo programme, bringing back 380 kg of rocks and soil. These samples from the Moon, along with scientific measurements made on the surface and from the orbiting mother craft, have helped scientists to piece together a detailed picture of our nearest neighbour in space.

Although no more Moon trips are currently planned, men will eventually return to the Moon, probably setting up small scientific bases like those in Antarctica, from which geologists will continue their study of the Moon and astronomers will observe the sky Such 'colonies' might also mine the Moon's crust for minerals.

Eventually, *a manned flight to Mars* may be planned, although not before the beginning o the next century. A round-trip to Mars would take a year or more, and would probably be undertakien by a crew of six, flying in two spacecrafts. Possibly the Mars flight will be a joint venture, with cost and construction shared between two or more nations, in the same way that the USA and Russia worked together to achieve the *Apollo-Soyuz link-up* in July 1975.

In the *Skylab space station*, and its smalle Russian counterpart called *Salyut*, astronaut have begun to extend the surveys of Earth resources and astronomical observations begun by satellites. The three Skylab crews, each of three men, brought back a total of 72 km (45 miles) of magnetic tape logging instrumental results, 46,000 Earth resource pictures, and 175,000 images of the Sun take through the special Skylab solar telescope

Space stations allow scientists and engineer

After Concorde a Super-Concorde

The Concorde

The Concorde jet, dismissed until recently as a technological Dodo, is starting to look like the herald of a brighter future for supersonic air travel.

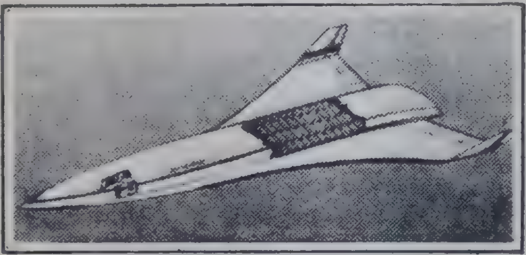
The Concorde is proving to be a modest commercial success for the two airlines that operate it. And, in the nondescript office block at the Toulouse airport where the original Concorde project took shape in collaboration with British designers, a successor generation of faster-than-sound aircraft is seen as a possibility for the 21st century.

In the United States, the *Orient Express* program to develop a *national aerospace plane* to link America and Asia at hypersonic speed is under way with strong presidential backing.

In Toulouse, Aerospatiale, the state-owned company that built the Concorde with British Aerospace, has drawn up plans for a bigger super-Concorde, and it is carrying out research on a much faster *"Avion a Grande Vitesse"* or AGV, that could in theory be in service in the first quarter of the next century.

British Aerospace is also working on plans for a hypersonic reusable space vehicle, code-named Hotol, that could be developed into a passenger aircraft.

Aerospatiale engineers say the sleek 100-passenger Concorde, which can fly at 1,350 miles an hour, more than twice the speed of sound, was an idea that may have come before its time. "You have to remember it was designed around the time of the Boeing 707", said Jean Marqueze-Pouey, the head of Aerospatiale's advance research department.



The Super-Concorde

Although, if built today, its take-off weight could be reduced by a third, to 120 tons, and its powerful engine roar muted to meet subsonic noise regulations, the original Concorde—designed in 1962 and in service since January 1976—"is still a very modern aircraft," Mr. Marqueze-Pouey said.

Looking 10 years ahead—the time needed to develop new variable cycle engines—it would be possible to build a longer-range and quieter second-generation Concorde that would carry twice as many passengers as the existing version, Mr. Marqueze-Pouey said, yet be no more expensive to operate than Aerospatiale's 310 series Airbus now in operation.

Designers on both sides of the Atlantic are looking beyond the supersonic generation to a new breed of global hypersonic aircraft that would have enough range and speed to link major population centers in America, Europe and Asia within a couple of hours.

The Orient Express concept being explored by the National Aeronautics and Space Administration and the Defense Department, for example, could cut flight time from Washington to Tokyo from 13 hours to perhaps two.

to take advantage of the conditions of weightlessness and total vacuum when developing new manufacturing processes. Without gravity, for example, perfect crystals can be grown of materials for electronic components such as transistors. Materials that do not mix under gravity, for example oil and water, form a perfect blend in weightlessness.

Metals can therefore be fused, then cooled and solidified to make new alloys unattainable on Earth. Space conditions can also be used to produce ultra-pure chemicals such as vaccines, or make possible studies of cell growth that may throw new light on biological malfunctions such as cancer.

Before the promising applications of space can be fully exploited, the cost of space launches must be brought down. This has been the incentive for the development in the USA of a new transportation scheme called the *Space shuttle*. The Shuttle's main component is a re-usable spacecraft, *the Orbiter,* which is launched by means of rockets but can glide back to Earth like an aircraft, landing on a runway.

The winged Shuttle Orbiter is the size of a modern jetliner, with a cargo bay 18.3 m (60 ft) long and 4.6 m (15 ft) wide which can carry up to 29.5 tonnes into orbit. The shuttle can therefore launch several satellites at a time, and bring others back to Earth, if necessary, for repairs.

Each Shuttle Orbiter will be re-used up to 100 times largely replacing conventional rockets which can be used once only. It is hoped that the Shuttle's re-usability will bring down the cost of space missions by about 90%. The Shuttle Orbiter's first test flight into orbit, with a crew of two, took place successfully in April, 1981.

The first Space Shuttle 'Columbia' reached orbit on April 12, 1981 - the 20th anniversary of man's maiden trip to Space. Shuttles Columbia, Challenger, Discovery and Atlantis achieved many firsts in space exploration and research. Shuttle 'Challenger' took Sally Ride, the first U.S. woman, to space on June 18, 1983. The first night flight, launched on August 30, 1983, carried also America's first black, Guion S. Blueford, who performed space exercises under the eye of Space Physician William Thornton, aged 54, the oldest astronaut to make a space journey.

Atlantis, the fourth and final member of th NASA's Shuttle fleet was launched on Octobe 3, 1985. It deployed two bomb-shieldec jam-proof Air Force Communication Satellites

In November 1984 Shuttle succeeded i retrieving two malfunctioning Satellites, namely Palpa B-2 and Westar-6. These Satellite could be used again. Shuttle made successfu retrieval and repair of Satellite Solar Max i April, 1984. For this historic feat astronauts ha to get out of the Spacecraft and 'walk in space for as long as 6 hours and 44 minutes.

The American space programme received a set back on January 29, 1986 whe their *Space Shuttle Challenger* exploded i mid-air, 75 seconds after lift off. The crev — six astronauts and a woman schoc teacher named Christa Mcauliff — all diec

America was shocked into disbelief tha their space programme was so ill-conceived. After 25 years of space exploratio and 55 missions, the U.S. faced spac history's worst disaster. With so many safet devices built into the 1.2 billion dolla spacecraft and repeatedly tested during th previous 24 successful flights of the shuttl in five years, it was beyond imagination tha something would go wrong with the booster rocket.

This was precisely what happened whe the ghastly tragedy took place. The seve astronauts were promptly declared "national heroes". In the aftermath the NASA itse was overhauled. Vice-Admiral Richard Truly, astronaut for 14 years, replaced Mr. Jess Moore as Director of the Shuttle programme.

Challenger tragedy was a set back no only for the U.S., but also for many othe countries including India which had programmed multi-purpose satellites to be launched by the US shuttles. President Reaga ordered to build a new shuttle.

Meanwhile the Soviet Union went furthe ahead with her spectacular spacefeat. O February 20, 1986 it launched a new orbit space station called *Mir* (peace) describe as a third generation space laboratory fro Baikonur Cosmodrome in Kazakhstan. joined the *Salut-7* space station that ha been in orbit around the Earth since Apr 1982.

'Mir' is a multi-modular station which ca accommodate six spacecrafts at the same time. Two Soviet cosmonauts were launched to space on *Soyuz T-15* on March 13, 1986 for a rendezvous with 'Mir'. The craft docked with the space station the next day. For the first time in Soviet space history, the entire launch was televised live throughout the world.

The Salut crew, Leonid Kizim and Vladmir Solovyov, conducted several experiments including flying from one space station to another. They flew to Salut-7 from Mir, spent 50 days on board and flew back successfully.

Both the Soviet stations have orbits on the same plane some 3000 km apart but the shuttle takes more time than a trip either way with earth because the space ship Soyuz uses the laws of the celestial mechanics—changes orbits—for the shuttle in manoeuvres designed to save fuel.

Salyut-7 is in the near-earth orbit for four year's during two of which it has been manned by nine crews including an Indian and a French cosmonaut.

Both the Soviet cosmonauts returned to Earth on July 16 after spending 125 days in space.

Cosmonaut Yuri Romanenko set a space endurance record after he ended his 35th week aboard space station *Mir* on October 2, 1987. The earlier record of 237 days was set by compatriots Kizim, Solovyov and Atkov in 1984.

The European consortium, China, Japan, India and Brazil are also going ahead with their space programmes.

The European Space Agency, an 11-country consortium had a setback on May 30, 1986 when the *Ariane* rocket exploded after take off from Kurou, French Guiana, carrying with it a telecommunication satellite. However, they made a come back by successfully launching two telecommunication satellites by one rocket on September 15, 1987 from the same site.

China is looking for foreign customers for a launch programme—only Sweden has accepted so far—and a Japanese project is on the drawing-board.

(India's Space Programme: See India)

THE EARTH

The earliest systematic theory of the Earth was the geocentric (geo=Earth) theory. According to this theory, the Earth is the unmoving centre of the universe, round which the Sun and the stars and all other heavenly bodies revolve.

One of the earliest proponents of this theory was Euodoxius of Cnidos, circa(Halies) 360 B.C. Many Greek philosophers disagreed with this view. Aristarchus of Samos (310-230 B.C), for example, held that "the fixed stars and the Sun remained unmoved, that the Earth revolved round the Sun on the circumference of a circle, the Sun lying at the centre of the orbit". However, the ideas of Aristarchus and others like him never gained currency.

The final formulation of the theory was made by Claudius Ptolemy, a Greek astronomer of Alexandria. He brouhgt out an encyclopaedic work on astronomy in about 140 A.D. This work, later known by its contracted Arabic name *Almagest,* remained the Bible of astronomy for another 1400 years. Looking back, it seems incredible that such a fallacious theory should have ruled for so long a time. Actually the theory enjoyed this longevity because it had two attractive features. First it agreed with the apparent (not real) movements of the heavenly bodies. This satisfied the popular minds. Second, it flattered man's vanity to think that his abode–the Earth – was the centrepiece of the universe.

The heliocentric theory (helios-sun) was first advanced by Nicolaus Koppernigk (1473-1543), a Polish astronomer, better known by his Latinised name Copernicus. In 1543 Copernicus published a book *De Revolutionibus Orbium Coelestium* in which he set out the theory that the Sun was the centre of the universe and that the Earth and other planets revolved round it. Wrote Copernicus, "In the middle of all dwells the Sun. Who indeed, in this most beautiful temple, would place the torch in any other or better place, than one, whence it can illuminate the whole at the same time? Not ineptly, some call it the lamp of the

SPINNING OUT THE SEASONS

Our Earth is a seasoned traveller. Autumn cools into winter and spring warms up to summer as we journey with the globe on its year-long circuit of the Sun. And it all happens because the whirling Earth doesn't stand up straight.

Imagine its orbit as the edge of an oval table, with the Sun as the centrepiece. Like a cockeyed top, the Earth spins around the table edge, leaning at an angle of 23½°. Without that tilt, we would have no seasons. Every day and every night would be 12 hours long, no matter where you lived or what month it was.

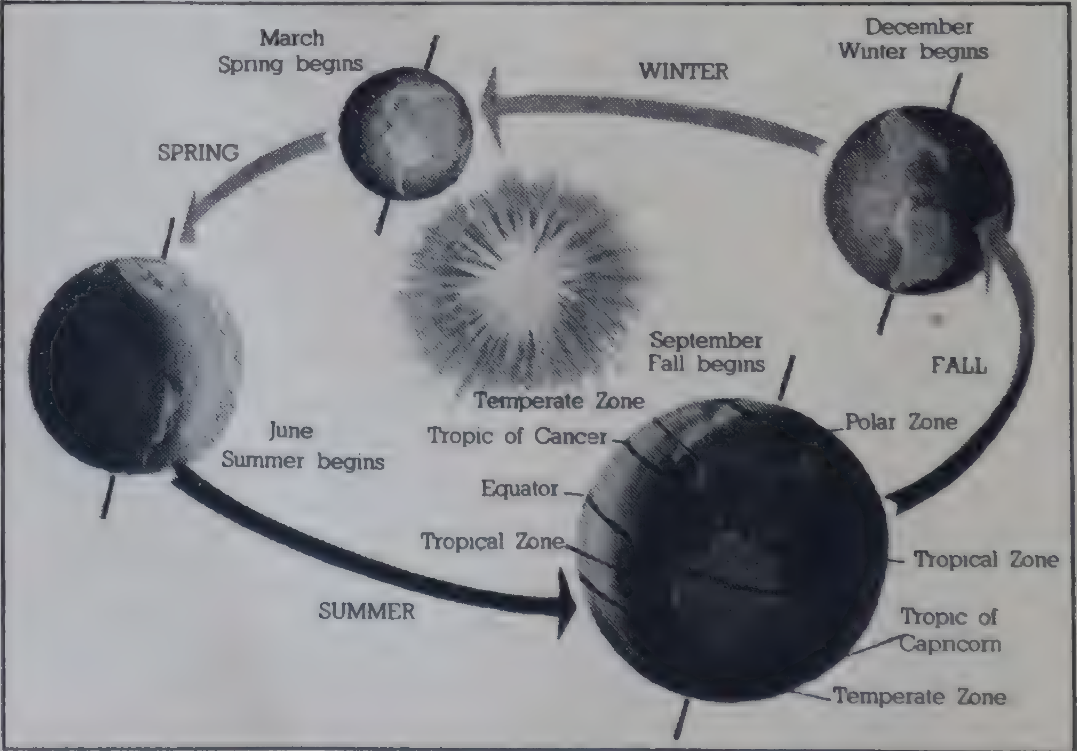
When a person in Kansas squints up at the Sun in June, he sees it passing nearly overhead, since the North Pole is then tilted toward the Sun. No wonder he mops his brow; the sun's rays are hitting Kansas almost straight-on. It makes little difference thatthe Earth is beginning to swing farther away from the sun in its oblong orbit. The Sun radiates energy, but not in the form of heat; sunlight only produces heat when it strikes something it can't go through, like a road or a roof or a sunbather's skin.

To see how this happens, go to a window and hold your hand in the sunlight coming through the glass. Feel the warmth? Now feel the glass. It's cold because the sunlight passes right through it.

Another reason summer is warmer is that the days are longer than the nights. The dark then covers more of the Southern Hemisphere than of the Northern. Direct sunlight, long days — that's summer!

Now it's December, and the North Pole is tilted away from the Sun. And so is Kansas. The Sun's rays now strike at an angle and much of the heat is lost. And night's black skullcap has shifted northward, giving the Sun less time to warm things up. Long nights, a cool Sun low in the southern sky — that's winter!

In Australia the seasons are just the opposite; folks there sweat while people in the Northern Hemisphere shiver. In the tropics, on a wide belt that straddles the Equator, the weather stays warm all year — and often gets very hot. But at the poles, the Sun's angle is always low — thus the ice caps.


March
Spring begins
WINTER
December
Winter begins
SPRING
September
Fall begins
FALL
Temperate Zone
Polar Zone
June
Summer begins
Tropic of Cancer
Equator
Tropical Zone
Tropical Zone
SUMMER
Tropic of
Capricorn
Temperate Zone

universe, others its mind, others again its ruler..."

Like all other astronomers of the day, Copernicus believed that the solar system was equivalent to the universe. This was a mistake which was corrected only in recent times. He was also mistaken in assigning circular orbits to the planets. This mistake was corrected by the German astronomer Johannes Kepler (1571-1630) in 1609. For the rest, the Copernican theory was sound and unassailable.

Nevertheless, the theory faced stormy weather. For the better part of a century disputation went on between the Copernicans and the Ptolemians, with the Copernicans remaining on the defensive. Even the Danish astronomer Tycho Brahe (1546-1601), the most celebrated astronomer of the times, rejected the heliocentric concept. It was left to the Italian astronomer, Galileo Galilei (1564-1642) to save the Copernican theory from extinction. Galileo fought a lifelong battle in defence of the Copernican theory. Before he died he had the satisfaction of knowing that the tide had turned and that the Ptolemians were on retreat.

Sir Issac Newton (1642-1726) dealt the last blow at the geocentric theory. He formulated the law of gravitation and correlated it with his laws of motion. His book *Philosophiae Naturallis Principia Mathematica* (known shortly as *Principia)* marks a turning point in the history of astronomical thought.

Modern theories on the formation of the Earth and other planets are of course based on the Copernican theory. In 1749, the French naturalist Comte de Buffon argued that the planetary system originated as the result of a collision between the Sun and a comet that came out from the depths of space. In 1775 the German philosopher Immanuel Kant advanced what has since been known as the nebular hypothesis. He suggested that the Earth and the other planets were condensed from a rotating nebula of gas centred in the Sun (solar nebula). The French mathematician Marquis de Laplace supported the nebular hypothesis in 1796. Around 1900 two American astronomers, T.C. Chamberlin and F.R. Moulton, offered an altered version of Buffon's theory. They argued that a star (not a comet) passed by the Sun and drew out the material that later condensed into planets.

Earth Data

Superficial area	196,950,000	sq. miles
Land surface	57,510,000	"
Water surface	139,440,000	"
Equatorial circumference	24,902	miles
Polar circumference	24,860	"
Equatorial diameter	7926.7	"
Equatorial radius	3,963.34	"
Mean distance from the Sun	92,857,000*	"
Time of Rotation on its own axis	23 hrs. 56 min. 4.09 sec	
Period of Revolution round the Sun	365 days 5 hrs. 48 min. 45.51 sec.	
Inclination of the axis to the plane of the ecliptic	23°27'	

Speed of Rockets (that is, velocity required to counter earth's gravity and to rise up into the atmosphere)- A minimum of 8 km (5 miles) per second.

Escape Velocity (that is, speed necessary to break away from the earth into outer space)-11 km (7 miles) per second

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* This is now known as Astronomical Unit. A.U.

Neither Buffon's thesis nor that of Chamberlin and Moulton could hold out for long. But Kant's hypothesis received further support. In 1943 the German scientist von Weizacher came out with a restatement of the nebular hypothesis. He was supported by the American astronomer Kupier. They argued that the entire solar system originated from a massive wheeling cloud of gas and dust some 6 billion years ago. The central mass of this rotating disc of gas formed the Sun. Because of its intense pressure and temperature, the Sun produced light, heat and other radiations through nuclear reaction. The clouds on the periphery of the central mass (Sun) condensed to form the planets and other celestial bodies of the solar system– all of which are held together by the gravitational pull of the Sun.

The age of the earth was a matter of speculation till very recent times. Imagination played a very great part in this process. Naturally, the conclusions varied greatly. Thus an old Russian calendar put down the age of the Earth at a mere 2000 years, while a Hindu calculation (quoted by Prof. Arthur Holmes) put it down at 2000 million years. In 1658, an

Irish bishop, James Ussher, set out to fix the exact age. He calculated on the basis of the Bible that the Earth was created on Sunday, the 23rd October, at 9 a.m in the year 4004 B.C.

It was only about 200 years ago, that scientific enquiries were started by geologists. According to their deductions, based on the study of rocks, the age of the Earth is estimated to be around 4600 million (4.6 billion) years.

Our knowledge of the internal structure of the Earth is derived from studies of earthquakes. The shock waves sent out by an earthquake indicate the physical nature of the regions through which they pass. These studies show that the centre of the Earth is a solid core-the *Inner Core*. The density of this core is about 13 g to the cubic centimetre. The Inner Core is about 1300 km thick and is surrounded by an *Outer Core* of around 2080 km. The Outer Core appears to be molten.

The Outer Core is surrounded by the Mantle which has a thickness of around 2900 km. The Mantle is topped by the crust of the Earth, which varies widely in thickness–from 12 to 60 km. At the centre or the Inner Core, that is at a depth of some 6370 km temperature goes up to some 4000°C and pressure reaches nearly 4 million atmospheres.

The mantle is important in many ways. It accounts for nearly half the radius of the Earth (2900 km), 83 per cent of its volume and 67 per cent of its mass. The dynamic processes which determine the movements of the crust plates are powered by the mantle.

Starting at an average depth of from 45 to 56 km below the top surface of the Earth, the mantle continues to a depth of 2900 km where it joins the outer core. The mantle is a shell of red hot rock and separates the Earth's metallic and partly melted core (both the inner and the outer cores) from the cooler rocks of the Earth's crust. It is composed of silicate minerals rich in magnesium and iron. The density of the mantle increases with depth from about 3.5 grams per cubic centimetre to around 5.5 grams, near the outer core.

The upper portion of the mantle, about 250 km thick, is called the *Asthenosphere*. Here the rocks are partially melted, with thin films of liquid distributed between the mineral grains. The red hot nature of the lower mantle and the partially melted nature of the upper mantle (asthenosphere) combine to make the whole mantle plastic or yielding. It is on this plastic base that the top crust of the Earth (consisting of oceans and continents) that is to say, the lithosphere, rests. The lithosphere is distinguished from the asthenosphere by the fact that it is cooler and therefore more rigid.

The crust of the earth which tops the lithosphere virtually floats on the asthenosphere. Like other floating bodies the crust seeks an equilibrium riding deeper where it is heavier and rising higher where it is lighter. The mountains on the crust have deep roots of light material to support them and when the load on any part of the crust changes, the surface responds by rising or sinking to restore the equilibrium.

The outer surface of the earth is divided into four spheres. *1. Lithosphere* means the entire top crust of the earth and includes not only the land surface but also the ocean floor. *2. Hydrosphere* is the water surface which includes the oceans, lakes and rivers. *3. Atmosphere* is the blanket of air that envelops the earth. It covers both the land surface and the water surface. *4. Biosphere* is the sphere of life which spreads over all the three other spheres, lithosphere, hydrosphere and atmosphere.

LITHOSPHERE

The lithosphere is the top crust of the earth on which our continents and ocean basins rest. It is thickest in the continental regions where it has an average thickness of 40 km and thinnest in the oceans where it may have a maximum thickness of 10 to 12 km. It constitutes about 1 per cent of the Earth's volume and 0.4 per cent of its mass.

Though the lithosphere technically includes both the land mass and the ocean floor it is often used to indicate only the land surface. Regarded thus, the lithosphere forms only 3/10 of the total surface of the Earth. The rest 7/10 is taken up by the oceans.

As we see it today, the topmost portion of the land surface is sand and soil except where rocky outcrops show. All the sand and much of the soil that we see have derived from ancient

Plate Tectonics

The discoveries of the sixties, supporting the theory of Continental Drift, have given birth to a new concept of geology– Plate tectonics. *Tectonics simply means the study of rock structures involved in earth movemnts. Plate tectonics deals with such structures as are in the form of plates. The concept has revolutionised the study of geology in the same way as the Copernican theory has revolutionised the science of astronomy. The Copernican theory entailed a radical change in our ideas of the Earth and the solar system. Plate tectonics has worked a similar revolution in our conception of the Earth itself. It has proved that the Earth is not static but dynamic, so dynamic that it can rightly be described as 'alive and kicking.'*

The theory of Continental Drift assumes that the continents plough through the oceans like massive ships. Plate Tectonics tells us that it is not only the continents that are in motion, but the oceans as well. This is so, because the top crust of the Earth is not (as we have thought) an unbroken shell of granite and basalt, but a mosaic of several rigid segments, called plates. These plates include not only the earth's solid upper crust, but also parts of the denser mantle below. They have an average thickness of 100 km (60 miles). They float on the plastic upper mantle of the Earth, called Asthenosphere, *and carry the continents and oceans on their backs like mammoth rafts.*

All these plates are in constant motion relative to one another. One source of confusion in distinguishing between continental drift and plate tectonics is the assumption that continents and plates are synonymous. They are not. Continents form only a part of the plates, the surrounding oceans form the rest of the plates. The continents alone do not drift or move. It is the plates containing both continents and oceans that move. So we now talk of plate movements *instead of* continental drift.

rocks. The rocks themselves were originally formed from the molten magma, which erupted from the interior of the earth. Powerful earth movements have heaved up some of the rocks to the top surface, where they are exposed to climatic influences. The process by which rocks are broken down into sand is known as 'weathering'. Many factors operate to weather down the rocks, of which the most important is 'weather' itself.

When rocks heated hot by the Sun are suddenly cooled by rain they crack. When the process goes on for thousands of years big rock formations crumble down as sand. Similarly frost can break down rocks. Water caught in the crevices of rocks turns to ice in winter conditions and expands. This pressure often cleaves rocks. These and other conditions have combined to produce the land formations that we see today.

The contours of the landscape are largely conditioned by the rocky substructure of the lithosphere. Geologically speaking, all materials that make up the crust of the Earth are rocks, whether they are big granite boulders, combustible coal, soft clay or loose fragments of gravel or sand. Rocks which form the substructure of the lithosphere may be broadly grouped into three classes- *1. Igneous rocks, 2. Sedimentary rocks,* and *3. Metamorphic rocks.*

Igneous rocks are formed out of the molten magma from the interior of the earth. Ninety-five per cent of the earth's crust is made up of these rocks. Three types of igneous rocks may be noticed here, *Granite, Basalt* and *Volcanic.* Granite is the major rock in continental formations. Basalt largely occurs in ocean beds. Volcanic rocks, as the name implies, are formed from the molten lava ejected by volcanoes.

Sedimentary rocks are so called because they are formed from the sediments deposited in the ocean beds. They comprise only 5 per cent of the Earth's crust but cover about 75 per cent of the land surface. Sedimentary rocks though not important structurally are important economically. It is from these rocks that we get our coal, oil and some valuable minerals. Sedimentary rocks are mainly made up of the weathered remains of igneous rocks but they also contain much organic matter formed from the remains of microscopic marine organisms, dead wood and other

Continents

Name	Area sq. miles	Percentage of Earth's area	Population Estimate	Highest Point in feet		Lowest Point in feet	
Asia	16088000	29.5	2316312000	Everest	29028	Dead Sea	1302
Africa	11506000	20.0	401000000	Kilimanjaro	19340	Lake Assai	512
N. America	9390000	16.3	342700000	McKinley	20320	Death Valley	282
S. America	6795000	11.8	219000000	Aconcagua	22834	Valdes Penin	131
Europe	3745000	6.5	660313000	Elbrus	18510	Caspian Sea	92
Australia†	2968000	5.2	13800000	Kosciusko	7310	Lake Eyre	52
Antarctica	5500000	9.6	–	Vinson Massif	16860		

† Australia with New Zealand, Tasmania, New Guinea and the Pacific islands, (Micronesian, Melanesian and Polynesian Islands) is called *Australasia* by some geographers while some others call it Oceania.

vegetable matter. Sedimentary rocks are formed in horizontal layers called strata and take millions of years to harden into rocks. Once formed, these rocks are often rolled up or deformed and shifted about by earth movements and are sometimes located in the most unlikely places, the top of the Himalayas, for instance.

Metamorphic rocks are rocks transformed by the action of intense heat or great pressure or chemical activity on rock formations *in situ*. Both igneous and sedimentary rocks are liable to be metamorphosed. Metamorphosis is often associated with volcanic activity or the extrusion of molten or hot gases into pre-existing rock formations. Marble, for example, is formed by the action of intense heat on limestone. Slate is formed by the compression of shale and mudstones.

The Lithosphere is divided into twelve climatic regions.

We know that the face of the Earth, that is, its visible-surface has undergone radical changes in the past. Geologists explain these changes as the consequence of the cooling and contraction of the Earth, through thousands of years. This explanation seemed quite unsatisfactory to a German scientist, Alfred Wegener (1880-1930). In 1915, Wegener published a book *The Origin of Continents and Oceans* in which he advanced a new theory, the theory of *Continental Drift*.

This theory claimed that the changes in the appearance of the Earth were, in the main, due to the shifting of continents. Wegener grounded his theory primarily on two premises. First, that the geological formation and fossil remains of the present far away continents showed striking similarities. Second, that some of the continents showed astonishingly complementary coastlines. The east coast of South America, for example, matches the west coast of Africa so finely that they would fit together exactly, if they were brought together.

MOUNTAINS & DESERTS

Mountains are conventionally divided into four types, according to their mode of origin: Fold mountains, Block mountains, Volcanic mountains and Residual mountains.

Fold Mountains arise because the rocks in them have been buckled and crumpled by pressure. Just as a tablecloth, when pushed, along a table, wrinkles up into folds, the rocks of the Earth's crust react to lateral pressure to form folds. If the pressure is very great, the folds are squeezed tightly into pleats. Further pressure will send the pleats rolling over one another. As the pleats roll up, high elevations are formed. Only massive pressures like those resulting from colliding plates can fold and mould rocks into mountains. In fact, it turns out that all our big mountain systems have been formed by colliding plates. The *Himalayas* rose over such a collding zone. So did the *Andes* (S. America), the *Rockies* (N.America) and the *Alps* (Europe). The Himalayas, the Andes, the Rockies and the Alps are fairly young mountains and are classed as *new fold mountains*. They have come into being, after the continental drift started with the break up of the super continent, Pangaea.

What are called *old fold mountains* must have been formed in the pre-drift era long before the continental masses came together to form Pangaea. Among the old fold mountains are the *Pennines* of Europe, the *Appalachians* of America and the *Aravallis* of India. These mountains have weathered down to stumps long ago.

Principal Peaks

Name	Country	Height (ft)
Mt. Everest	Nepal-Tibet	29,028
Mt.Godwin	India	28,250
Kanchenjunga	Nepal-India	28,280
Dhaulagiri	Nepal	26,810
Nanga Parbat	India	26,660
Annapurna	Nepal	26,504
Nanda Devi	India	25,645
Mt. Kamet	India	25,447
Gurla Mandhata	Tibet	25,355
Tirich Mir	Pakistan	25,263
Minya Konka	China	24,900
Mt. Communism	USSR	24,590
Pobeda Peak	USSR	24,406
Muztagh Ata	China	24,388
Chomo Lhari	India-Tibet	23,297
Muztagh	China	23,890
Aconcagua	Argentina	22,834
Ojos del Salado	Argentina-Chile	22,532
Cerro Mercedario	Argentina	22,221
Huascaran	Peru	22,205
Liullaillaco Volcano	Chile	22,057
Tupungato	Chile-Argentina	21,489
Sajama Volcano	Boliva	21,391
Illampu	Bolivia	21,276
Vilcanota	Peru	20,664
Chimborazo	Eucador	20,561
Mt.McKinley	Alaska	20,320

Block Mountains come into being as a result of vertical earth movements along cracks or faults. Such movements are also caused by the pressure generated by plates. When such vertical earth movements leave a block of high elevation standing between two areas of low elevation, the high land area forms a block mountain. Block mountains are usually steep-sided. The *Vosges* in France and the *Black Forest* mountains in W. Germany are mountains of this type.

Volcanic Mountains form as a result of volcanic eruptions. When a volcano erupts, the materials that are ejected fall around a hole or crater and build up a mountain that is roughly conical in shape and has a crater at the top. *Fujiyama* in Japan, *Vesuvius* in Italy and the *Chimborazo* and *Cotopaxi* in the Andes (S. America) are examples of such mountains.

Residual Mountains: Some mountains are so deeply dissected and reduced by weathering and river action that they stand out as skeletons. The *Catskill* mountains of New York are typical of this class.

Great Deserts

Name	Country	Area in sq. miles
Sahara	N.Africa	3,500,000
Libyan	N.Africa	650,000
Australian	Australia	600,000
Great Victoria	Australia	125,000
Syrian	Arabia	125,000
Arabian	Arabia	50,000
Gobi	Mongolia	400,000
Rub'al Khali	Arabia	250,000
Kalahari	Botswana	200,000
Great Sandy	Australia	160,000
Takla Makan	China	125,000
Arunta	Australia	120,000
Kara Kum	S.W.Turkistan	105,000
Nubian	N.Africa	100,000
Thar	N.W.India	100,000
Kizil Kum	Central Turkistan	90,000

ISLANDS

Islands take a large mass of land, the biggest 16 of them accounting for as much as 22 million sq.miles–greater than the area of the continent of Europe. The smaller islands count by the thousands. Islands are broadly divided into three types, continental, oceanic and coral.

Continental Islands are those islands that rise from the continental shelf, like the British Isles or Newfoundland. These islands have the same geological structure as the continents to which they are related. *Oceanic Islands* are those that rise from the bosom of the oceans. Their gelological structure will have no relation to that of the nearest shores. They are very often the tops of submarine mountains or submarine volcanoes. *Ascension* and *Tristan da Cunha,* for example, rise from the Central Atlantic ridge (mountain) while *St. Helena* and *Teneriffe* are islands formed by submarine volcanoes.

Coral Islands are the work of minute sea organisms called coral polyps. They congregate in large colonies. When the organisms die, their skeletons, which are made of a substance resembling limestone, form big clusters, some of which rise above the water.

Coral organisms are of many types and coral formations assume many strange shapes. Some colonies spread out like fans, others grow into umbrella-like discs or plates, while many develop spiky horns. Their colours are also as varied as their shapes. Most corals are of different pastel hues, such as lavender, soft blue, green or violet. Coral retains its fascinating colours when the colony is alive. When the colony dies, the colours fade gradually, and totally disappear where the coral is exposed to the heat of the Sun.

The gem varieties of coral which have been found in red, pink, gold or black colours do not bleach or change colour when exposed to the sun.

One type of coral excels in building reefs. Reef-building corals thrive in warm tropical seas. They usually start building reefs, along the edges of islands. Such reefs are called *fringing reefs.* Many tropical islands have such fringes. These protect the islands from the ravages of the sea. Sometimes an island, with a coral fringe begins to sink. Its shoreline goes down first, while coral building continues upwards. The sea invades the sinking shoreline and separates the coral reef from the rest of the island. Such a reef is called a *barrier reef.* The *Great Barrier Reef,* which extends for more than 1200 miles parallel with the coast of Queensland, Australia, appears to have come into existence in this manner. This is the biggest coral reef known and consists almost entirely of the limestone skeletons of countless coral colonies that had existed through thousands of years.

World's Largest Islands

Name	Area sq.miles	Location
Greenland	840000	Arctic Ocean
New Guinea	317000	West Pacific
Borneo	287400	Indian Ocean
Malagasy Rep.	227800	Indian Ocean
Baffin Island	183810	Arctic Ocean
Sumatra	182860	Indian Ocean
Honshu	88019	N.W. Pacific
Great Britain	84186	North Atlantic
Eliesmere Island	82119	Arctic Ocean
Victoria Island	81930	Arctic Ocean
Celebes	72987	Indian Ocean
South Island, N.Z.	58093	S.W. Pacific
Java	48763	Indian Ocean
Luzon	46636	West Pacific
North Island, N.Z.	44281	S.W. Pacific
Newfoundland	42734	North Atlantic
Cuba	41634	Caribbean Sea
Iceland	39698	North Atlantic
Mindanao	39191	West Pacific
Ireland (N.Ireland & Rep. of Ireland)	31839	North Atlantic
Hokkaido	30007	N.W. Pacific
Hispaniola (Dom. Rep. & Haiti)	29530	Caribbean Sea
Sakhalin	28597	N.W.Pacific
Tasmania	26215	S.W.Pacifc
Sri Lanka	25332	Indian Ocean

Low circular coral islands, each with a central lagoon of shallow water, are called *atolls.* Atolls probably represent the last stage in the evolution of a coral island. When the island around which coral is built sinks, the coral ring remains above water, while the island disappears under the water. In course of time the coral limestone reef is weathered down to soil and seeds carried by birds or wind begin to sprout and produce vegetation. Then the coral reef turns into an inhabitable area-*a coral island* in fact.

Atolls consist of two parts, a central lagoon (watery area) and a surrounding reefland. Sometimes the watery surface is much bigger than the land surface. This is the case with *Kwajelin* in Marshall Islands, Central Pacific, where the water area covers 1100 sq. miles while the land area is a narrow ring, with a total length of 176 miles. On the other hand, *Christmas Island* in Line Islands, Central Pacific, is an atoll with the largest land area known–184 sq. miles. Its lagoon or water surface is relatively insignificant.

HYDROSPHERE

It is estimated that the hydrosphere contains about 1,460,000,000 cubic km of water. Of this 97.3% is in the oceans and inland seas. The rest 2.7% is found as glaciers and ice caps, fresh water lakes, rivers and underground water.

The total stock of ocean water and fresh water has been fairly constant throughout geological history. But the ratio between ocean water and fresh water has always changed according to climatic conditions. When the climate is very cold much of the sea water is absorbed by glaciers and ice caps and fresh water increases at the expense of sea water. When the climate grows hot glaciers and ice caps melt and sea water gains at the cost of fresh water. Sea level observations during the last 60 to 80 years indicate that the sea level is rising slowly. This means that the climate is getting hotter.

The oceans cover 70.8% of the Earth's total surface area and hold 1445 million cubic km of water. The water despite its abundance is not directly useful to man, because it is not potable.

The ocean water contains about 3.5 per cent of dissolved salts – chlorine, sodium, magnesium, sulphur, calcium, potassium, bromine, strontium and boron. Minute quantities of carbon, silicon, aluminium, flourine and iodine are also found. The oceanic waters are always in motion, owing to a variety of natural forces.

Solar heat sets ocean water moving. The Sun warms up the water in the equatorial regions causing it to expand and rise by a few inches. This extra rise in the equator causes the water to flow down, to the north and south poles. As the warm water of the equator flows north and south, the heavier cold water (heavier, because of its extreme condensation) in the polar areas sinks below the warm water and spreads slowly along the bottom to the equatorial regions.

This interflow is complicated by the force of the rotation of the Earth. Because the Earth spins eastwards, the sea water tends to roll up to the west, turning slightly to the right in the northern hemisphere, and to the left in the southern hemisphere. This is known as the *Coriolis Effect*, after the French mathematician who discovered it nearly a century ago.

The oceans, unlike the continents, merge so naturally into one another that it is hard to demarcate them. Nevertheless, geographers have divided the oceanic area into 4 oceans, namely the *Pacific*, the *Atlantic*, the *Indian* and the *Arctic*. These oceans, by definition, include the seas, bays, gulfs and other ocean inlets attached to them.

The *Pacific* ocean is the largest and the oldest of the oceans. It occupies 35.25 per cent of the earth's area. It is 10492 miles at its broadest and 37,782 feet at its deepest (Mindanao Deep). It has the greatest conglomeration of islands, which fall into three broad groups. *Micronesia, Melanesia* and *Polynesia.*

The *Atlantiac* ocean, the second largest ocean, covers 20.9 per cent of the earth's area. Its greatest depth is 27,498 feet (Miilwaukee Deep).

The *Indian* ocean, the third largest, stretches from Cape Comorin in India to the Antarctic at the South Pole. It takes up 14.65 per cent of the Earth's total surface area. Its greatest depth is 25,344 feet (Planet Deep).

The *Arctic* is strictly not an ocean. It is not navigable. It winds round the North Pole and is completely frozen in winter and covered with drifting ice for the rest of the year. However, its separate existence and its area of over 5 million sq. miles entitle it to be called an ocean.

Though we have only four oceans there are seven seas. The proverbial seven seas are made up by dividing the first three oceans into north and south along the Equator and adding Arctic to them, thus we have North Pacific, South Pacific, North Atlantic, South Atlantic, North Indian, South Indian and Arctic Seas.

The following table shows the areas of the oceans, with their seas and other inlets detached.

Oceans

Name	Area (sq. miles)
Pacific	63,800,000
Atlantic	31,800,000
Indian	28,400,000
Arctic	5,400,000

Principal Seas

South China Sea	3,144,000
Caribbean Sea	1,063,000
Mediterranean Sea	966,750
Bering Sea	875,750
Gulf of Mexico	595,750
Sea of Okhotsk	589,800
East China Sea	482,300
Hudson Bay	475,800
Sea of Japan	389,000
Andaman Sea	308,000
North Sea	222,125
Black Sea	178,375
Red Sea	169,000
Baltic Sea	163,000
Persian Gulf	92,200
Gulf of St. Lawrence	91,800

RIVERS, LAKES & FALLS

The two longest rivers in the world are the Amazon (Amazonas) flowing into the South Atlantic and the Nile (Bahr-el-Nil) flowing into the Mediterranean. Which is the longer is more a matter of definition than simple measurement.

The length of the Amazon as measured in 1969 is 4007 miles (6448 km). A subsequent calculation has placed it at 4195 miles (6750 km). The length of the Nile as measured by M. Devroey of Belgium is 4145 miles (6670 km). If we take the lower figure for Amazon (4007 miles) the Nile leads by 38 miles. If the greater length is considered (4195 miles) the Amazon leads the Nile by 50 miles.

However, in judging rivers, the primary criteria are the amount of water they carry and the extent of the area they serve whether for navigation or cultivation. On these counts the Nile loses to the Amazon by wide margins. The Amazon has the longest stretch of navigable water, 2300 miles. It has the greatest flow of all rivers in the world with an average 4,200,000 cubic feet of water per second (cusecs) rising up to 7,000,000 cusecs in flood. It has the largest river basin in the world, 2,720,000 sq. miles. It has some 15,000 tributaries, the longest tributary Medeira having a length of 2000 miles.

Longest Rivers

Name	Country/ Continent	Length in miles
Amazon	S. America	4007/4195
Nile	Africa	4145
Mississippi-Missouri	USA	3710
Yangtze Kiang	China	3400
Ob-Irtysh	USSR	3200
Congo	Africa	2900
Amur	Asia	2704
Hwang	China	2700
Lena	USSR	2648
Mackenzie	Canada	2635
Mekong	Asia	2600
Niger	Africa	2600
Parana	S. America	2450
Yenisey	USSR	2364
Murray-Darling	Australia	2310
Volga	USSR	2290
Maderia	S. America	2000
Yukon	Alaska-Canada	1979
St. Lawrence	Canada-USA	1900
Rio Grande	USA-Mexico	1885
Purus	S. America	1850

Sao Francisco	S. America	1800
Salween	Asia	1750
Danube	Europe	1725
Euphrates	Asia	1700
Indus	Asia	1700
Tocantins	S. America	1700
Brahmaputra	Asia	1680
Syr-Darya	USSR	1680
Si	China	1650
Ganga	Inndia	1650
Orinoco	S. America	1600
Nelson	Canada	1600
Zambezi	Africa	1600
Ural	USSR	1574
Amu-Dar'ya	USSR	1550
Olenek	USSR	1500
Paraguay	S. America	1500
Japura	S. America	1500
Arkansas	USA	1450
Colorado	USA-Mexico	1450
Dnieper	USSR	1418
Rio Negro	S. America	1400
Orange	Africa	1350
Kolyma	USSR	1335
Irrawaddy	Burma	1325
Ohio	USA	1306
Kama	USSR	1262
Don	USSR	1222
Columbia	USA-Canada	1214
Saskatchewan	Canada	1205
Peace	Canada	1195
Darling	Australia	1160
Angara	USSR	1157
Tigris	Asia	1150
Sungari	Asia	1130
Pechora	USSR	1111
Snake	USA	1038
Red	USA	1018
Churchill	Canada	1000
Pilcomayo	S. America	1000
Uruguay	S. America	1000
Magdalena	Colombia	1000

Famous Waterfalls

Name	Country	Height (ft.)
	By Height	
Angel	Venezuela	2648
Kukenaam	Venezuela	2000
Ribbon	USA	1612
King George VI	Guyana	1600
Upper Yosemite	USA	1430
Gavarnie	France	1385
Tugela	S. Africa	1350
Wollomombi	Australia	1100
Takakkaw	Canada	1000
	By volume of water	
		Average annual flow (cu. ft./ sec.)
Guaria	Brazil	470000
Khon	Indo-China	410000
Niagara	Canada	212200
Paulo Afonso	Brazil	100000
Urubupunga	Brazil	97000
Iguazu	Argentina	61660
Patos-Maribondo	Brazil	53000
Victoria	Zimbabwe	38430
Grand	Labrador	35000
Kaieteur	Guyana	23400

ATMOSPHERE

The atmosphere is an insulating blanket protecting the Earth. It softens the intense light and heat of the Sun. Its Ozonic (O^3) layer absorbs most of the very deleterious ultraviolet rays from the Sun and thus protects living organisms from extinction.

The atmosphere is bound to the Earth by gravity. Satellites like the Moon, which have very low gravitational power, cannot and do not hold an atmosphere.

Air pressure simply means the weight of the entire air column over a given point. Air, of course, has very little weight. A cubic foot of air weighs around an ounce and a quarter. At the sea level, the air pressure is 14.7 pounds to the sq. inch. This pressure is usually described as *one atmosphere.*

The atmosphere is composed of various gases and water vapour, and in its uppermost reaches, it is charged with subatomic particles. Up to about 30 miles from the Earth, the atmosphere consists of about 78 per cent nitrogen, 21 per cent oxygen (O_2) and minor percentages of argon, carbon dioxide, neon, helium and methane, in that order. Above 30 miles, the atmosphere is made up of atomic oxygen (O_1), ozone, (O_3), helium and hydrogen.

What is Lightning?

What is lightning, how to protect against it and how to predict when and where it is most likely to strike? Scientists in the U.S. are trying to find the answers by various daring tests.

One is by sending aloft rockets at the thunder clouds to extract powerful bolts of electricity. One-meter (3 foot) rockets are being fired into the clouds. These rockets will have 2100ft wire trailing. Each rocket, like a key or lightning rod, should attract the strong negative electric charge in the cloud and thus trigger a luminous crackling surge of electricity down the wire to the ground — a lightning stroke.

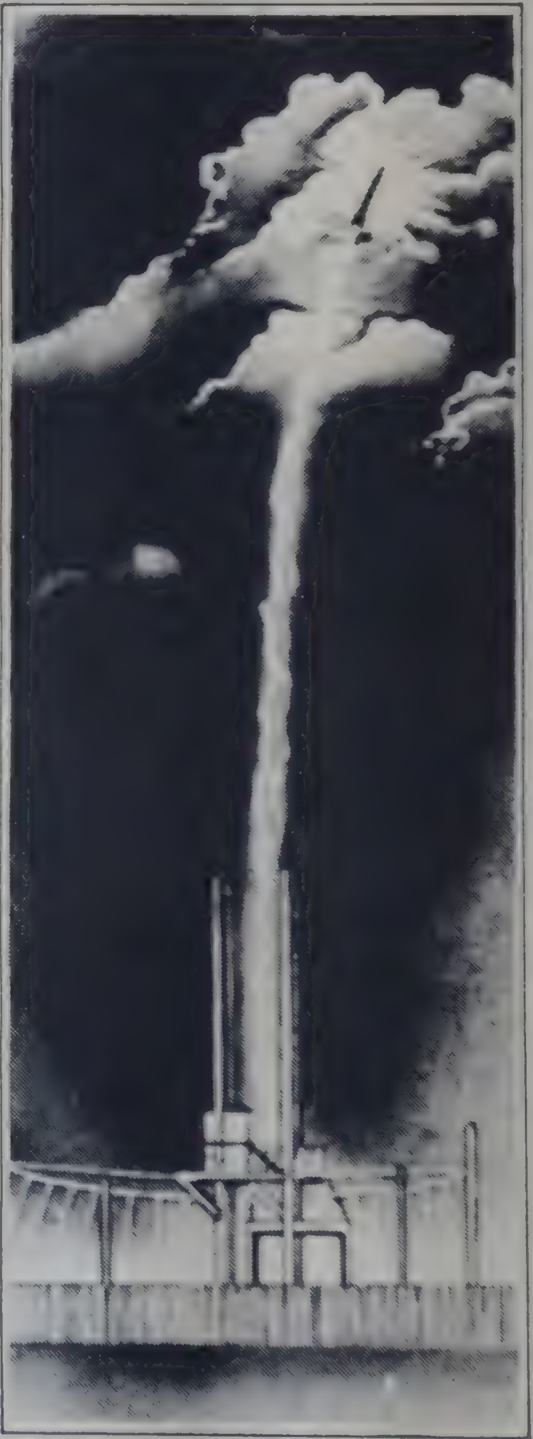
An array of cameras, radio receivers and sensors will monitor the rocket-triggered lightning to give scientists what they hope will be a better understanding of the nature of lightning, how to protect against it and how to predict when and where it is most likely to strike.

Physicists who have made a career of studying lightning concede there is still much to learn. Lightning may well have sparked the chemical evolution of life on earth. It probably brought fire to early humans. It kills or injures many people each year and causes forest fires and other extensive property damage. Yet, for all the theories, the exact process of generating lightning remains a mystery.

In the U.S., NASA is spearheading the research. They were prompted by the Atlas-Centaur accident in which the meteorologists misinterpreted the lightning hazard information.

The unmanned rocket took off and triggered a lightning bolt, which scrambled the vehicle's electronics. The rocket and its communications satellite, a $160 million package, tumbling out of control, were destroyed on a command from the ground.

William Jafferis, the NASA supervisor of the research program, said: "We have a forecast problem. We need a better warning system that tells us lightning is close to us."



The presence of atomic hydrogen in the upper atmosphere has recently been confirmed by a camera left on the surface of the Moon by the Apollo-16 mission. The camera has revealed a cloud of atomic hydrogen extending outwards from the Earth to about 64000 km.

Water vapour is present in the lower atmosphere, say up to 7 miles, in concentrations ranging from 0.01 per cent to 1 per cent. Although the amount of water vapour in the atmosphere is very small, its importance is very great, for without water in the atmosphere, there would be no weather on Earth. Water enters the atmosphere by evaporation from the hydrosphere (and also by transpiration of plants) and leaves the atmosphere by precipitation as snow or rain. It is a never ending two-way traffic.

Clouds are made of water vapour that has evaporated from the Earth. They are very tiny droplets of microscopic size and are too light to fall down as rain. So they ride on the air waves until they condense and then fall down as rain. Clouds are classified according to their shapes. *Cirrus* clouds are shaped like ringlets and go up to 40,000 ft. in height. *Cumulus* clouds are those that rise in heaps, and *Stratus* are those that are scattered about. *Nimbus* clouds are the menacing rainstorm clouds. The various types are often found mixed together like the *cirro-cumulus, cirro-stratus, cumulo-nimbus* etc.

It is the surge of electricity from the Earth that makes lightning the awesome phenomenon that it is. The lead, however, is taken by the clouds which send down a rather weak stroke called the leader stroke. The Earth responds by sending up a much more massive stroke to the clouds. The whole thing takes less than a second, so that we see the leader stroke and the counter stroke as one flash of lightning.

Dry air is highly resistant to electricity. When the air is loaded with water vapour it becomes an easier conductor. Nevertheless, much power is required for the stroke to rip through the air. This excessive discharge of electricity heats up the air around the passage (of the stroke) to incandescent temperatures, say 10,000°C. It is this glowing air that we see as lightning flash. The heat also causes a sudden expansion of air which, as the heat disappears, contracts quickly again. This sudden expansion and contraction produce the familiar thunder clap. Although both occur at the same time, we see the flash first because light travels much faster than sound.

The character and composition of the atmosphere change as we go higher and higher. Altitudinally arranged, there are 4 important spheres, with 3 pauses. They are: 1. Troposphere with Tropopause, 2. Stratosphere with Stratopause, 3. Mesosphere with Mesopause and 4. Ionosphere or Thermosphere.

The *Magnetosphere* which lies beyond the Exosphere along with *Magnetopause* which marks the outer boundary of the Magnetosphere, does not form part of the atmosphere. It represents the outermost limits of the Earth.

Troposphere is the lowest gaseous layer of the atmosphere and extends to a height of about 7 miles from the Earth. The troposphere contains nearly two-thirds of the total mass of the atmosphere.

Tropopause is the layer that joins troposphere, the lowest layer, with the upper layer Stratosphere. The height of tropopause varies with latitude.

Stratosphere is the region above tropopause. It is about 20 miles thick. It is free from the violent weather changes which occur below. So, it is preferred by our jet liners. Jet liners, however, face another meance in stratosphere, namely Jet Streams. Jet Streams are high velocity air currents.

BIOSPHERE

The idea of a biosphere (sphere of life) was first suggested by the Austrian geologist Eduard Suess nearly a century ago. It was at that time an insignificant concept. Today, however, the biosphere has become the most important problem faced by man.

The distinguishing feature of the biosphere is that it supports life. It is estimated that the biosphere contains more than three hundred and fifty thousand species of plants including algae, fungi, mosses and higher forms of plants, and eleven million animal species ranging from uni-cellular protozoa to man. The biosphere supplies the essential requisites of life for all these species, namely light, heat, water, food and living space or habitats.

The biosphere, or the *eco-system*, as it is generally called, is an evolutionary system. It represents a stable equilibrium of various physical and biological factors which have been operating in the past. The organic continuity of the system rests on a delicate net-work of interdependent relationships. The air, the water, man and the animals, plants and planktons, the soil and bacteria are all invisibly interlinked in a life-sustaining system we call the environment.

The eco-system or the enviornment has a *rhythm* and movement of its own which depend upon a whole set of delicately balanced cycles. All living organisms–microbes, plants, animals, man – have survived by adjusting themselves to the environment and attuning their lives to its rhythm. It is, therefore, absolutely necessary that these cycles should be maintained unimpaired.

What keeps the biosphere going is solar energy which comprises 99.98 per cent of the total energy supply of the biosphere. Day in and day out the Sun pours forth its energy in the form of sunlight. Light consists of bundles of energy called *quanta*. The energy content of a quantum of light is proportional to its frequency. The shorter the wavelength, the higher the frequency and the greater the energy content.

The process by which solar energy is transferred to molecules is called photochemical process. In this process sunlight excites the electrons in a molecule and kicks them out. This releases electrons to pair with other electrons from a neighbouring atom or molecule and thus forms electron-pair bonds. These new bonds create new molecules.

The most important photochemical activity in the biosphere is *photosynthesis* in plants. Photosynthesis is a complicated process. The light absorbed by chlorophyll molecules and by other pigments in plants is transferred to electrons in such a way as to create strong oxidants, that is, molecules that readily remove electrons from other molecules (oxidise them), or reductants, that is, molecules that readily supply electrons to other molecules (reduce them).

It is these oxidants and reductants that assist plants in producing carbohydrates and oxygen from molecules of carbon dioxide and water. Plants respire (give out) oxygen but retain carbohydrates which are converted to energy and stored in the form of chemical bonds, notably those of adenosine triphosphate (ATP) which is the basic energy currency of all living cells. High energy phosphate bonds of ATP contain 12000 calories and release 7500 calories when broken.

This energy is carried up the food chain by herbivores feeding on plants and carnivores feeding on herbivores. Omnivores like man draw their energy both from plant and animal sources. Much of the energy drawn by plants and animals (including man) is consumed and spent in maintaining the process of life.

The energy that is not expended in the course of life is stored in dead matter. Decomposing bacteria break up the dead matter and convert it into *humus* or *organic sediments*, releasing carbon dioxide, water and heat into the biosphere. Thus the basic ingredients of life are returned to the soil. The plants draw their nutrients from the soil and keep the cycle going.

Heat Cycle. Heat is one of the prime requisites of life. This is supplied by solar radiation. It is calculated that the solar heat reaching the Earth's orbit (just above the atmosphere) amounts to about 2 calories per sq. centimetre per minute. But the Earth gets only less than half the radiation reaching the top of the atmosphere.

About 2 per cent is absorbed by the ozone layer in the atmosphere. Atmospheric water vapour, carbon dioxide and dust particles absorb around 18 per cent. The clouds reflect back into space some 23 per cent. About 22 per cent is scattered by the atmospheric dust. The Earth receives only the balance of 38 per cent. But the story does not end there. Out of the 38 per cent solar radiation received, the Earth re-radiates about 7 per cent by long wave radiation, thus reducing the stock of terrestrial energy to 31 per cent.

At the same time, out of the 22 per cent scattered by the atmosphere, 16 per cent ultimately reaches the Earth as *diffuse radiation*, the rest 6 per cent being irretrievably lost in space. Thus, on the whole, the Earth receives about 47 per cent of the solar energy reaching the atmosphere. Meanwhile, the atmosphere acting as an intermediary between the Sun and the surface of Earth, retains about 5 per cent of the energy as sensible heat and about 24 per cent as latent heat in water vapour.

It is essential that the absorption and re-radiation of heat should ultimately balance. Otherwise the Earth would experience a net increase in heat or a net decrease according as a surplus or deficit of heat results from radiation. The balance between absorption and re-radiation is mainly regulated by water vapour in the atmosphere.

There is only a very little amount of water in the atmosphere, about 0.001 per cent. This insignificant amount of atmospheric water exercises an influence on the climate of the Earth, out of all proportion to its total mass. Besides keeping the balance between the absorption and radiation of heat, it controls the water cycle and determines our climatic conditions.

Carbon Cycle. The biosphere contains a complex mixture of carbon compounds, in a continuous state of creation, transformation and decomposition. Practically all organic matter originates in the process of photosynthesis. The plants use the radiant energy of the sun to convert carbon dioxide and water into carbohydrates by splitting water to derive hydrogen, and by drawing in carbon dioxide from the air. In the process the plants release free oxygen (O_2) into the atmosphere.

While plants absorb carbon dioxide during photosynthesis, all living organisms respire and release carbon dioxide and decomposing bacteria do the same in regard to dead matter. But while respiration and decomposition go on all the time, photosynthesis takes place only during daytime. During daytime, carbon dioxide in the atmosphere comes down from an average of 320 parts per million to around 305 parts but at night it increases, going up to as much as 400 parts per million, near the ground level.

Apart from the daily production and consumption of carbon (in the form of carbon dioxide), the Earth has a vast stock of carbon in permanent form. This stock consists of inorganic deposits (mainly carbonates like calcium carbonate etc.) and organic fossil deposits (chiefly coal, shale and oil) When we burn fossil fuels, we are merely adding more carbon dioxide to the atmosphere which has an excess supply already.

Oxygen Cycle. Oxygen not only supports life but also plays a fundamental role as a building block of practically all vital molecules accounting for about a fourth of all the atoms in living matter.

The most recent factor affecting the oxygen cycle of the biosphere and the oxygen budget of the Earth is man himself. He inhales oxygen and exhales carbon dioxide, thus reducing the stock of oxygen and increasing the supply of carbon dioxide. He goes further and burns fossil fuels, depleting the oxygen supply still further. He reduces photosynthetc activity, by cutting down forests and replacing them with cities.

Some astronomers think that the original supply of oxygen in the atmosphere came from the ultraviolet rays of the Sun which broke up the water molecules in the upper atmosphere into hydrogen and oxygen. Whatever may be the initial source of the oxygen in the atmosphere, what is important is that the plants are now augmenting the oxygen supply by photosynthesis. They are not only augmenting our oxygen supply but also reducing the total supply of carbon dioxide which is increasing to alarming dimensions.

Nitrogen Cycle. Nitrogen as it is obtained in the atmosphere cannot be used by the higher organisms. It has to be "fixed", that is, incorporated into a chemical compound. Nitrogen, in other words, has to be converted into *ammonia* or *amino acids*, so as to be of use to plants and animals.

Fixation of atmospheric nitrogen on land is carried out by organisms called diazotrophs who possess the genetic code for the synthesis of enzyme nitrogenase which catalyses nitrogen fixation. These organisms fall into two broad classes – symbiotic and non-symbiotic. Symbiotic diazotrophs operate in association with some species of plants like legumes. They contribute the lion's share (83%) of nitrogen fixation on land. Non-symbiotic agents who contribute the rest (17%) include blue green algae, aerobic (those requiring oxygen) bacteria and anaerobic (those who do not require oxygen) bacteria.

The total annual nitrogen required by the biosphere is estimated to be 1050 million metric tonnes (mmt). Of these the diazotrophs account for only 140 mmt. Non-biological agents like lightning or fire contribute 40 mmt.

The balance of 870 mmt. comes from nitrogen locked up in dead plants and animals. These are recycled by nature as nitrates. The nitrates are converted into amino acids by decomposing bacteria. In aerobic conditions, where oxygen is available, bacteria will again intervene to oxidise the amino acids into carbon dioxide, water and ammonia. Thus nitrogen in the form of ammonia is returned to the atmosphere, where it gets dissolved in rain water, and ultimately replenishes the Earth.

Man has interfered with this natural cycle by industrially fixing nitrogen. He is now converting nitrogen into assimilable forms by artificial methods. Production of nitrogenous fertilisers has increased phenomenally in the last few decades. This means that there is an extra input of nitrogen into the atmosphere. This extra input is already larger than the natural output. We cannot now say how far this extra input will affect the biosphere or in what direction.

Water Cycle. Water plays a versatile role in the functioning of the biosphere. It is essential to all forms of life, plants, animals and man. The water cycle has two distinct branches – the atmosphric branch and the terrestrial branch. In the atmosphere, water exists mainly in gaseous form. On the Earth, liquid forms and solid forms (ice) pre-dominate.

Water is important to the biosphere in that it is from water that the biosphere draws its most abundant element, hydrogen. Hydrogen in the form of carbohydrates constitutes a very important source of energy for all living things. Although we have a plentiful supply of water in the oceans, it is not of direct use to us.

We depend upon a small stock of water–less than 1 per cent – contained in our rivers and fresh water lakes and in the subsoil. This little stock of water is replenished by an even smaller stock of mobile water – less than 0.001 per cent – which circulates in the atmosphere as water vapour much of which ultimately falls down as rains.

The water cycle of the biosphere depends on the reciprocity of evaproation and precipitation. Liquid water on the Earth goes into the atmosphere as vapour by evaporation and transpiration of the plants. The vapour is returned to Earth (precipitation) as rain or snow.

ECOLOGY

Man's meddling with nature, chemical effluents, nuclear waste, acid rain and ever increasing presence of carbon-dioxide in the atmosphere have resulted in the greatest ecological crisis known to mankind. The death of 2500 persons at Bhopal in 1984 due to inhalation of poisonous gas leaked out of an insecticide plant is the latest warning to humanity.

Ecology has been defined as the study of organisms in relation to their environment. This covers the whole world of organic life—plants including fungi and animals including microbes and man. Then, there is the environment itself, which includes not only the animate organisms that populate the biosphere but also the inanimate forces operating in nature.

Though ecology covers all species of life, the species which occupies the centre of the stage is man, because he, alone of all species, has set out on confrontation with nature. His fight with the established natural systems has had a long history. But it is only in the latter half of the 20th century that it has assumed the proportions of a crisis. This is what is described as the *Ecological Crisis*.

When man gave up living on what food he found in nature and settled down to grow his own food, he began inferfering with natural systems. This happened during the very dawn of history when men built the first great river valley civilizations of Sumeria, Egypt and the Indus Valley. Ever since, man has been incessantly engaged in struggles of one kind or another with natural systems.

Since the Industrial Revolution, his interference with the ecosystem increased both in volume and in intensity. Man had by that time colonised the far corners of the Earth. Everywhere he went he had fought nature and won. In the first flush of success he described his progress as the *Conquest of Nature*. Now he wonders who is conquering whom.

In the ecosystem all species of life, plant and animal, are inter-linked with one another.

25 Years of World Wild Life Fund

World Wildlife Fund (WWF) now renamed Worldwide Fund for Nature, celebrated its silver jubilee at the monastic town of Assisi in 1986.

Of the more than 4,000 projects in 130 countries that WWF supported in these years, "Project Tiger" is the best illustration of its approach.

When Mr. Guy Mountfort, WWF founder and trustee, proposed a campaign to save the endangered tiger in 1972, a wild life census revealed that the tiger population had dwindled to 1,827 from an estimated 40,000 in 1900. On the tenth anniversary of the project in 1983, the count was nearly 4,000.

When Mr. Mountfort, accompanied by Mr. Charles de Haes, now director-general of WWF International and Mr. Zafar Futehally ex-vice president of WWF India called on Mrs. Indira Gandhi and offered to raise one million U.S. dollars for creation of tiger reserves, she agreed without hesitation.

Mrs. Gandhi appointed Dr. Karan Singh, then minister for tourism and aviation as in-charge of the task force.

The reserves selected range from the mangrove wetlands of West Bengal to the arid bush forests of Rajasthan and the dense bamboo and teak forests of Maharashtra. They cover 24,712 sq km of land of which 8,608 are core areas.

WWF has turned over nearly 1 million dollars to India's "Project Tiger" and spent a good amount on tiger conservation in Bangladesh, Bhutan, Malaysia, Indoneisa and Thailand.

The Union government has spent nearly U.S. $ 19 million on the project since its inception. Some 6,000 villages had to be moved out of the core areas. These communities were provided with new houses, schools, bio-gas plants to replace wood as fuel and given assistance to improve their farming.

World Wide Fund
WWF For Nature

Interference with any species will have long standing repercussions on others. We have been massively intervening in the environment without quite understanding its complications. Often enough, we realise the magnitude of the damage we have wrought long after the mischief has been done and the situation has passed beyond repair. The Dodo is a typical case.

It is clear that the biosphere is an integrated whole and that its numerous parts are interconnected. Prof. Barry Commoner points out that these interconnections, especially along the food chain, accelerate the impact of our inroads into the environment and amplify them greatly. Commoner gives the following example. If we put one unit of insecticide per gram in the soil, the earthworms living in the soil will contain 10 to 40 units per gram and in woodcocks feeding on the earthworms, the insecticide level will rise to 200 units per gram.

Agriculture was man's first great challenge to natural systems. He cleared forests to grow food for himself and built huge irrigation systems to assure a perpetual supply of water for his crops— and prospered. The ancients knew, as Plato tells us, that over-cropping and over-grazing will lead to soil erosion which may make deserts of fertile land. But that did not stop them. Look at the debris which our great civilizations have left behind them.

Ancient Sumeria—modern Iraq—was the granary of the *great Babylonian Empire*. The Sumerians harvested two crops and grazed sheep between the crops. Today less than 20 per cent of the land in Iraq is cultivated. "The landscape is dotted with mounds representing forgotten towns, the ancient irrigation works are filled with silt—the end product of soil erosion—and the ancient seaport of Urs is now 150 miles from the sea with its buildings buried under as much as 35 feet of silt".

Apart from erosion there is another factor that may convert good land into barren tracts. This is salinity. Salinity appears where the groundwater table is lowered owing to the excessive consumption of groundwater resources. All over the world there are large tracts of land blighted by salinity—in Mexico and several other parts of America, in Tanzania and many other parts of Africa, in India, China and South East Asia. In spite of this bitter experience, the reckless tapping of underground water goes on merrily all over the world. Peter White writing on Greece in the *National Geographic* says, "Driving eastward in Macedonia, I get more intimations of new-found prosperity....Around Pella so many wells have been dug that the fountain of Alexander the Great has dried up".

We have through the centuries created vast deserts of fertile lands. But we do not yet know how to make the deserts bloom. Despite the claims of Israel, it is still a far-off dream. All our natural resources are going the same way. We are consuming our minerals with an abandon that is hardly credible.

Since the Industrial Revolution our exploitation of natural power resources, coal and oil, has assumed alarming proportions. The Industrial Revolution itself was powered by coal. Then came oil. Both threaten to give out, oil sooner than coal. Now that the OPE countries are holding the rest of the world to ransom for oil, we have begun to think of alternate sources of power that will not run out on us like coal and oil. This is the only silver lining on the overcast power front.

What we destory, we can't replace, nor can nature—not at this speed. It has taken millions of years for nature to stock up our present supply of minerals and fossil fuels but it will take us only a few centuries to run through them. As pillagers and predators, we surpass all other species just as we do as thinkers and creators. Only our thinking and creative abilities are poor compared to our capacity for unthinking destruction.

No bird fouls its own nest. But the doubly wise man (homo-sapiens) excels in this obnoxious practice. It has been estimated that in Britain the average person throws out about 1.5 lb of garbage every day. In the US the wastes dumped into the biosphere are much greater—more than 4.5 lb per person per day. To these familiar wastes are added whole heaps of industrial by-products, which neither the producer nor the consumer wants.

The advance of technology in recent years has been dubbed the *Technological Revolution*. This revolution, like all revolutions, has backfired. While at one end it has hastened the consumption of scarce materials, it has at the other end thrown up a lot of unwanted wastes. These wastes are piling up and have already become unmanageable. Some of these wastes like synthetic plastics are not 'bio-degradable'. Therefore they may persist for years as abiding threats to the eco-system.

But worst of all are the pollutants which a sophisticated technology has been spewing all around us. Careful studies have shown that air pollution can damage vegetable crops and in general affect plant growth. This is reflected in the low nutrient quality of the plant products and consequent ill effects on the health of the animals and people who depend upon these crops. Here again, we have a remarkable *amplification*. But far more important are effects that arise secondarily.

Effluents are wastes containing assimilable nitrogen and phosphates which our factories are discharging into surface waters, like rivers and lakes. They enrich the water leading to the overgrowth of algae and similar organisms to the detriment of other organisms and finally to the extinction of all. "As large a body of water as Lake Erie", says Commoner, "has already been overwhelmed by pollutants and has in effect died...Sewage and industrial wastes and run-off from heavily fertilised farmlands have loaded the waters of the lake with so much excess phosphate and nitrate as to jar on the biology of the lake permanently out of balance. The fish are all but gone".

The widespread use of combustible fuels bodes ill for all species of animals in two ways.

depletes the oxygen supply and increases arbon supply.

When and if we reach the point, where the ate of combustion exceeds the rate of photosynthesis, we have not only to worry about unning out of oxygen at night (there is no photosynthesis in the absence of light) and in winter but the oxygen content of the atmosphere will actually decrease while the carbon dioxide content increases.

Between 1860 and 1960, the combustible uels added nearly 14 per cent to the carbon dioxide content of the air, which had until hen remained constant for many centuries. When you burn a ton of hydrocarbon you obtain as byproducts about one and one third ons of water and about twice this amount of carbon dioxide. Both carbon dioxide and water varpour make a huge greenhouse of the Earth because while they allow sunlight (short wave radiation) to reach the Earth, they prevent longwave heat radiation from the Earth escaping into space. The temperature of the Earth is therefore certain to rise as the amount of carbon dioxide in the atmosphere increases.

However, the greatest single source of contamination of the planet now is radio activity, from the explosions of nuclear weapons in the atmosphere. Fallout from nuclear tests contaminates every part of the Earth's surface and all its inhabitants.

It seems that mankind's consciousness has been aroused very strongly about the need for environmental protection and ecological preservation in recent years. Protest rallies and mass demonstrations around the globe are indications of the growing awareness. *Green Movements* sprouted in US, Europe & Australia. India has its Chipko Movement.

Environmentalists under the banner of 'Greens' woń 28 seats in West German Parliamentary Election in 1983 and Green Peace, the environmental protest group maintained its pressure on governments to ensure adequate protection to life on Earth. Nuclear explosion and dumping of nuclear and toxic chemical wastes without safety measures were stoutly opposed in many parts of the world.

Green Peace Ship 'Rainbow Warrior' which was on its way to lead a "Peace fleet" to the French nuclear test site at Mururoa Atoll in the Pacific was sunk in Auckland harbour on July 10, 1985 by French agents and the ensuing political scandal shook the very foundation of the French Government.

DESCENT OF MAN

Man has appropriated to himself the highest echelon in the biological hierarchy. But for all his pretensions of superiority he could not rid himself of many characteristics which he shared with lowlier species during the evolutionary process.

Biologically man belongs to the family of mammals and among mammals to a sub-family called the placental mammals. As a mammal he shares with other mammals, warm blood, hair and milk glands. As a placental mammal his young are carried by the female for a long period prior to birth, attached by a placenta to the uterus, through which the child receives nourishment from the mother's bloodstream.

The *mammals* are today the most biologically advanced species and dominate the world of organic life. But more than 75 millions of years ago when gigantic reptiles ruled the Earth, the mammals were a frightened and insecure group. In order to survive and reproduce this early stock of hairy, warm-blooded creatures (of whom the tiny shrew is typical) had to keep to secret ways or to the dark, had to eat whatever could be found and had to carry their developing young within them rather than lay eggs where they could too easily be discovered (by other animals).

"They were on the run, driven more or less underground or to foraging at dusk or through the night—a desperate kind of life that demanded a high fertility and a quick replacement of generations", wrote Norman J. Berri. This explains the fantastic evolutionary progress that the mammals achieved. They changed from the tiny scurrying creatures they were into undaunted hunters lording it over all other species.

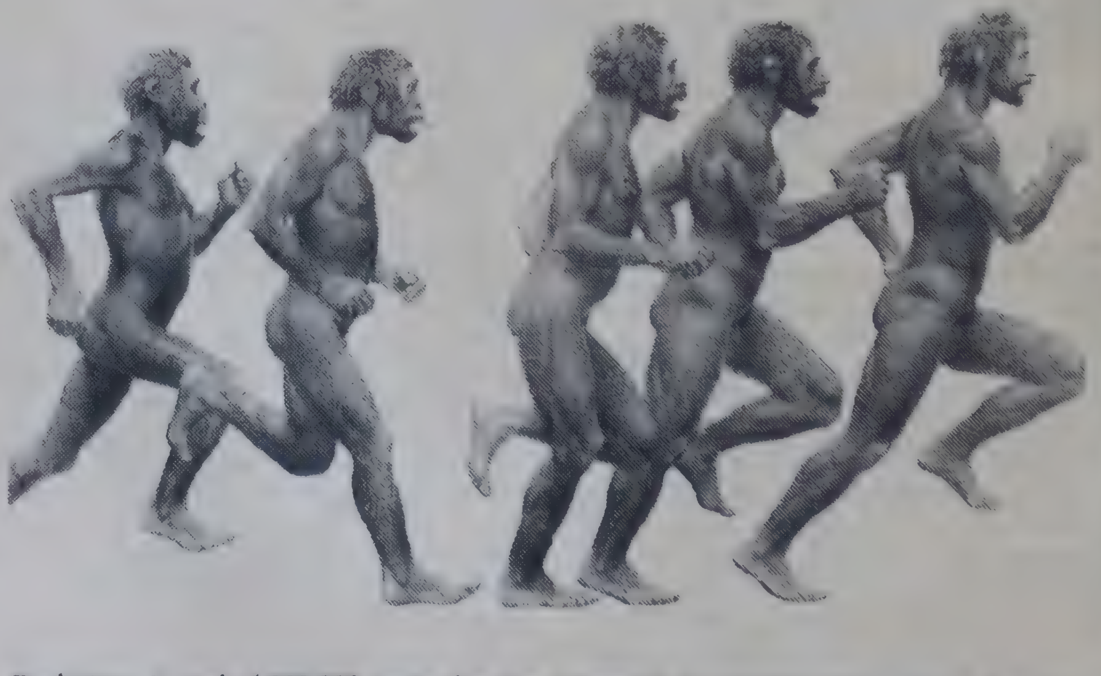
Among mammals, man belongs to the order of *Primates*. The Primates are distinguished by hands eminently adapted for grasping, an excellent vision, a keen sense of hearing but a poor sense of smell. The primates consist of monkeys, apes and man. The monkeys form a class by themselves, called the Lower Primates or Prosimians. Lemurs, lorises, tarsiers and tree shrews belong to this group.

Man and the apes together make up the Higher Primates or anthropoids. The anthropoids are in their turn divided into two groups, the *Pongidae* (apes) and the *Hominidae* (man).The hominidae differs from the pongidae in the shape and structure of the pelvis, legs and feet. This means that the hominidae can walk upright on their legs while pongidae have to use their hands as well for locomotion. The pongidae comprises four families—the gorilla and the chimpanzee of Africa and the gibbon and orang-utan of South-East-Asia. The hominidae consists of only one family—man.

According to Charles F. Hockett, the Homo Erectus represents our earliest truly human ancestors. He says, "As soon as the hominids had achieved upright posture, bipedal gait, the use of hands for manipulating, for carrying and for manufacturing generalised tools and language, they had become men. The human revolution was over."

"The species Homo Erectus lived at some time during the Middle Pleistocene apparently in a tremendous territory extending from Java and China to Europe, North Africa and may be to South Africa". This species was the first to achieve what may be called the *Homo Erectus Complex.* This consisted of six items, 1. Achieving prelanguage, 2. developing striding gait instead of shuffling gait, 3. successfully venturing out into open savanna or grassland, 4. engaging in more extensive and effective hunts with more co-operation, 5. developing more advanced carrying techniques, and 6. beginning to lose their hair.

The next turning point in evolution came around 50,000 years ago, in the warm interval when the ice was retreating in the Pleistocene age. Around this time, a new type of man, the *Homo Sapiens* (thinking man), began to crop up here and there in the form of various successful mutations. "By this time", says Charles F. Hockett, "the genus Homo consisted of a single, tightly connected, widespread but highly diverse species. All non-striding hominids were long gone. All surviving hominids were heirs to the full erectus complex. The brain had grown approximately to its present size with some variation in



Evolution: It took 4,000,000 years for the 'afarensis' to develop into Homo Sapiens.

average mass from one population to another".

The sapiens complex as it emerged showed four distinctive features: 1. a more efficient brain, 2. true language, 3. a flat face, and 4. exploitation of the kinds of articulatory motions that are now universal.

The new complex emerged within the framework of the erectus complex and did not undo any of its advantageous features. But it was a new key complex and gave rise to a new adaptive radiation, the second phase of human radiation. The sapiens complex spread just as the erectus complex did—by migration and gene flow.

The tempo, however, was almost unbelievable. The complex bestowed upon those who attained it an unprecedented capacity to cooperate, to move, to improve technology, to adapt and to absorb or eliminate less gifted competitors.

By about 40,000 years ago, there was no surviving group of hominids anywhere (with the possible exception of the *Neanderthals*) who had not absorbed the improved techniques. The Neanderthals persisted in Europe for many years after the sapiens complex became established. This tells us that the sapiens complex did not arise in Europe. But neither do we know where the sapiens complex originated. The Neanderthals lacked the flat baby face that had appeared elsewhere (among the sapiens) and their brains averaged somewhat larger than our own today or that of the Old World contemporaries of the Neanderthals.

GENES

Gregor Johann Mendel in 1885 showed that certain hereditary factors operate in all biological species. The Danish biologist Wilhelm Johannsen called these factors Genes. The name stuck. It is now known that the genes not only transmit hereditary traits but also mastermind the entire process of life.

The genes are located in the chromosomes which are themselves situated in the nucleus of the cell. The genes, the chromosomes and the nucleus together constitute – to use a famous phrase of Churchill's – "a riddle wrapped in a mystery inside an enigma". The genes form the riddle, the chromosomes represent the mystery and the nucleus the enigma.

Much of the mystery surrounding the genes was cleared up with the discovery of the structure of the DNA (Deoxyribo Nucleic Acid) announced by J. D. Watson and Francis Crick in April 1953. In structure the DNA resembles a long rope ladder twisted around like a corkscrew. If we straighten the ladder, we shall see that the two sides of the ladder are long chains of two substances – sugars and phosphates – in repeated sequences. These form the backbone of the DNA. Their structure never varies.

The secret of the DNA lies in the rungs that connect the two sides of the ladder. These rungs form two parts or two half-rungs, each half being attached to one side of the ladder. These half-rungs can be one of four types of little molecules: *Adenine (A), Cytosine (C), Thymine (T) and Guanin (G).* Each of these half-rungs together with the attached segment of the ladder is known as a *nucleotide*. A half-rung on one side will only join with a specified partner on the other side. This pre-determined arrangement for specific partners suggest that these little molecules form the letters of a fixed code or the words of a new language. Indeed, it has turned out that this is exactly what they are.

An *A* will form a rung only with a *T* and a *C* only with a *G*. So, the pairs *A–T, T-A, C-G* and *G-C* form in a way a four-letter alphabet with which messages can be spelt out. This four-letter alphabet makes up what is known as the *Genetic Code*. The genetic code is not only complex but also extensive. In 1977 Fred Sangar pointed out that the DNA code of a virus, when decoded by the computer came to a print-out of 15 metres. At this rate, the computer print-out for the human DNA would stretch to 16,000 km.

Enormously long strands of DNA intertwine within the core of living cells. So narrow and tightly coiled is this DNA that all the genes in all the cells in a human body would easily fit into a ½ inch cube. Yet, if all these DNA strands are unwound and joined together it would stretch from the Earth to the Sun and back

The genes control all functions of the cell and body growth. The two main events in the life of most cells are multiplication (by division) and synthesis of proteins. Both these operations are carried out on the basis of the blueprints coded in the genes.

Before a cell divides, the DNA ladder splits down the middle. The nucleotides *As* separate from the *Ts* and the *Cs* from the *Gs* much in the same way as a zipper is pulled apart. Now, the separated nucleotides A, T, C, and G pick up appropriate partners from the free-floating nucleotides in the cell. Thus the split ladder becomes two whole ladders of DNA, each an identical copy of the other. Once the division of the DNA is completed the rest of the cells, other organelles also duplicate, ultimately producing two cells of the same type.

The replication of cells in growing bodies is followed by differentiation. Life in most species begins from a single fertilised egg or cell. The single cell becomes a double cell, then a quadruple and so on. At the same time different sets of genes work in different cells evolving specific physical traits, while specialised cells form different organs of the body, hands, legs, brain, heart etc. This process is known as *differentiation*.

Differentiation implies strictly regulated work. The cells concerned concentrate on the task in hand and cease all other activities and when the work is completed they stop working. This switching on and off of genetic activities is achieved by the presence of two molecules attached to the genes – *inducers* and *repressors*.

The genes which we inherit from our parents determine our *hereditary* traits. Hereditary characteristics are not transmitted in a package, as it were. Different genes are responsible for different inherited traits. Each gene functions independently of other genes in this respect. The genes for a particular trait are found at the particular locations in the chromosomes.

Chromosomes are thread-like boides found in the nucleus of the cell. They are always found in pairs. Chromosomes vary in number according to species. The fruitfly, for example, has 4 pairs or 8 chromosomes in all, and the garden pea has 7 pairs (14 in all). Mice have 20 (40) and humans 23 (46).

Our 46 chromosomes arranged in single file would measure more than 6 feet. Yet they are contained in the nucleus which is about forty-thousandths of an inch. The nucleus is filled with nucleic acids of two kinds *Ribo Nucleic Acid*, RNA and *Deoxyribo Nucleic Acid*, DNA. The DNA is concentrated in the chromosomes while RNA is seen concentrated in the nucleoli, both of which are in the nucleus.

One of the primary functions of the cell is to manufacture proteins. The human body requires thousands of different proteins. All these are built from 20 amino acids. Each gene (or a distinct segment of the DNA strand) contains instructions for making a specific protein.

The instructions are coded into precise sequence of nucleotides. Just as we can change the meaning of a sentence by rearranging the words, the genes can spell an immense vocabulary of proteins using only the four nucleotides of the DNA – A, T, C, and G. All the A, T, C, and G in one set of human chromosomes (46 in number) can be put together in billions of different ways.

One geneticist, H. J. Muller, has estimated that the number of different ways of putting together all the As, Ts, Cs, and Gs would be the figure 256 followed by 2.4 billion zeros. This is a figure that boggles the imagination. It would be a lifetime job if any one sat down to write out that figure in full. Or, just try it.

In protein synthesis the DNA is assisted by the RNA (Ribo Nucleic Acid). RNA is a single strand as against the double strand of the DNA and is different in composition. That is to say, the RNA has *Uracil (U)* in the place of DNA's *Thymine (T)*. RNA is of two kinds, messenger RNA (mRNA) and transfer RNA (tRNA). When a protein is to be prepared the concerned gene opens. RNA (mRNA) nucleotides attach themselves to the gene and go on growing like a ribbon. This ribbon is the mRNA. It carries the code for making the specific protein.

Proceeding from the gene inside the nucleus the mRNA moves out into the cytoplasm looking for a ribosome for the assembly of the particular protein. The sequence of As, Us, Cs and Gs on the messenger RNA forms into groups of 3-letter words like *ACU, CGG, CCU* etc. These 3-letter words are called *codons*.

The message carried by the messenger RNA (mRNA) is transferred to the transfer RNA (tRNA). The ribosome with the assistance of the tRNA proceeds to collect the amino acids indicated in the message from the chemicals stored in the cytoplasm. Here, the amino acids are linked together in the sequence given in the code and the synthesis of that particular protein is completed.

Every cell is equipped with the material and the knowhow to build a full adult of the species. It is therefore possible to reproduce any organism if a living cell from any part of the organism is available. This was proved in the fifties by F. C. Steward of Cornell University. He placed tiny pieces from carrot slices in glass flasks containing nutritive solutions. He revolved the flasks slowly and released free cells from the carrot pieces. These free cells were left to grow by themselves. They grew into complete carrot plants. An English scientist J. B. Gurdon carried out another experiment with frog's eggs. He destroyed the nuclei in the eggs. The frog eggs were then filled with nuclei taken from a tadpole's intestinal tissues. The eggs developed into exact replicas of the donor tadpole. This opens up the possibility of cloning human beings themselves by the same process.

Cloning is asexual reproduction. A male and a female need not unite to produce an offspring. But in cloning, a cell from a male will only produce a male and vice versa. This handicap is compensated by the fact that the offspring will be an exact replica of the donor.

GENETIC ENGINEERING

As biologists learned more and more of the genetic code, they started investigations to see if the code can be permanently changed by manipulating the genes. All attempts in this regard have been collectively categorised as *Genetic Engineering*.

Genetic Engineering includes fusions, deletions, inversions and transpositions of genes. The most celebrated of all these attempts is the hybridisation of genes, that is grafting a piece of the DNA of one organism to the DNA of another. Research in this technique, briefly known as *Re-combinant DNA*, was facilitated by the discovery of the plasmids and of certain enzymes.

Pioneer attempts in this direction have been so successful that the technique has emerged as a commercial proposition. *Time* writes that this technique promises to be *"the technology of the 1980s just as plastics were in the 1940s, transistors in the 1950s, computers in the 1960s and micro-computers in the 1970s"*.

The technique involves micro-surgery. Precision tools for this surgery are provided by certain enzymes which Paul Berg calls molecular scalpels and sutures. One of these enzymes called Restriction Enzyme can cut the DNA at any specific point required and graft it on to a foreign DNA. The sliced-out gene must have sticky ends shaped like mortises in order to anneal it firmly to the foreign DNA. This is also done by the Restriction Enzyme. Given these conditions it is possible to re-combine DNAs as diverse as those of a bacterium and an animal.

The first successful attempt at grafting a piece of DNA to a foreign DNA was made by Paul Berg of Stanford University. He took his initial supply of DNA from a well known laboratory organism *SV 40* (short for simian virus 40). Its genetic structure is fairly simple with about 7 genes in all, compared to the thousands of genes that crowd the cells of higher organisms. To insert this genetic material into a bacterium, Berg used as his carrier (vector) another variety of virus called the *lamda phage*, which preys on bacteria.

The first step in the operation was to cut out a slice of SV 40's DNA molecule. This was done by the use of Restriction Enzyme. As the enzyme cut the double-stranded DNA, it left one strand jutting out at both ends. These were sticky ends and were to be inserted into the foreign DNA which was similarly cleaved with one strand standing out at each end. When the cut ends were put together the single strands joined up to become double strands and the cleavage in the DNA ring was closed up. When this was done Berg had achieved a scientific first – combining the DNAs of two species of virus into a single DNA molecule. Berg shared the 1980 Nobel Prize for Chemistry for this achievement.

The process of re-combination is as follows:

Genetic Finger- printing

The first laboratory in the world to offer service for people wanting to know the enetic relationship between individuals pened for business last week. The labora- ory uses a technique called "genetic ngerprinting", developed by scientists at ne University of Leicester. The technique istinguishes between individuals, hether they are humans or animals, and n determine the parentage of children.

The police are studying the technique ith a view to using it for confirming vhether a suspect was at the scene of a rime. Animal breeders want to use it to uarantee the pedigree of farm and omestic animals.

In genetic fingerprinting, scientists ex- act genetic material, DNA, from the ample of tissue, whether it is blood, emen, skin, or the root of a hair. They add nzymes to the DNA that chop it into tiny ieces of unequal size. They then put the agments into a gel, and an electric field parates the larger DNA fragments from e smaller ones.

The scientists then transfer the DNA om the gel to a nylon membrane by a rocess called Southern blotting—the fragments of DNA move from the gel to the membrane as the solution of DNA is drawn up by capillary forces created by blotting paper placed on top of the nylon membrane. The position of the DNA fragments in the nylon membrane exactly matches their position in the gel.

The next step is to add tiny pieces of DNA that are radioactively labelled. These DNA "probes" are built to identify regions of DNA known as hypervariables. Alex Jeffreys of the University of Leicester found that people are unique in terms of the distribution of hypervariables in their DNA. A child will share some of its hypervariables with its biological mother and some with its biological father.

Alec Jeffreys at Leicester University, who discovered DNA "fingerprinting"

After washing the nylon membrane, the only radioactivity left will be the probes that have stuck to hypervariable regions. Put the membrane next to X-ray film, and dark bands will appear where the probes have stuck to these regions. The distribution of the bands is unique to an individual and a child's "genetic fingerprint" will be an amalgam of the fingerprints of its two parents.

An E. coli bacterium is broken up by a detergent and the pieces are spun in a centrifuge to isolate the plasmids. The plasmid is then immersed in a restriction enzyme which cleaves the plasmid at the specified place. The same enzyme is used to snip off a piece of DNA from a virus. The foreign gene (from the virus) is inserted into the cleavage o the bacterial plasmid and a re-combine molecule is formed. The new hybrid plasmi is then introduced into a bacterium. Th bacterial cell divides and with it the plasmi also divides and multiplies.

"Gene splicing," says Time, "is the mo

powerful and awesome skill acquired by man since the splitting of the atom. It is an unparalleled exploratory tool for examining and in the process changing, the complicated machinery of heredity. If a gene of unknown function is inserted into a bacterium, it can act as a probe that lets scientists see precisely what it does. By such techniques researchers will finally speed up the formidable task of identifying, locating and analysing every one of the more than 100,000 genes found in the human cell".

The Recombinant DNA technique opens out many avenues of beneficial research. First comes the production of therapeutic proteins like interferon, insulin, hormones etc. Interferon is a powerful antiviral agent made by the human body. But its supply is very limited considering the demand. Its extraction from blood cells and other human tissues is costly too.

A single injection of interferon costs as much as 150 dollars. If, however, bacteria can be programmed to produce it (as has been done by Weismann early in 1981) the supply of interferon will be plentiful and cheap, coming down to a maximum of 1 dollar per shot. The reason is that as a manufacturing unit bacteria are unrivalled......Mechanical assembly lines, however sophisticated, can never compete with them. Replicating every 20 minutes a single bacterium can produce millions of bacteria in 24 hours all of them turning out interferon in unbroken succession.

The same is the case with insulin, growth hormones, vaccines etc. Already genetically engineered bacteria have emerged as suppliers of scarce drugs like *enzyme urokinase* used to dissolve blood clots and *betaendorphin*, one of brain's own pain killers. The human growth hormone used to treat dwarfism, formerly in short supply, is now being turned out by bacteria tailored to produce it.

The case of insulin is slightly different. Insulin was being extracted from the pancreases of cows and pigs. This was enough supply. But it turned out that some people were allergic to animal insulin. Now, bacteria specially programmed for the purpose are producing insulin which avoids allergies

FOOD & NUTRITION

Human diet is not restricted to any special category of food. Man can and does eat a variety of foods, of both plant and animal origin. Variety is, for him, the spice of life–more so in foods, than in anything else. This natural desire for variety is justified by the fact that no single food provides us with all the nutrients that we need.

Cereals, like rice or wheat which form the staple food of mankind, supply us only with a fraction of our nutritional requirements. We have to supplement cereals with other foods that provide plenty of fats and proteins and minor quantities of a number of vitamins and minerals. This means that the larger our diet sheet, the better our health will be. This will become evident, if we analyse what nutrients our foods contain and in what proportion.

The nutrients found in foodstuffs may broadly be classified as (1) Carbohydrates, (2) Fats, (3) Proteins, (4) Minerals, (5) Vitamins and (6) Water. Proteins, fats and carbohydrates' are called Macro Nutrients.

Proteins (from the Greek word *Proteios* meaning first) are the most versatile elements in the body. They are the chief substances of the cells of the body. They form important constituents of muscles and other tissues and vital fluids like blood. Enzymes, which assist in the digestion of food, and anti-bodies which are the body defences against infections are also mainly protein in nature.

The nutritive value of protein depends on the essential *amino acid* composition. Amino acids are the bricks with which tissue protein is built and replaced. There are some 20 amino acids commonly found in dietary proteins. Of these, 10 amino acids can be synthesised by the body itself, whether by mutual conversion among amino acids or from non-protein sources. But 10 amino acids cannot be so synthesised and have to be supplied through diet. These are called *essential amino acids*. Adults require 8 essential amino acids while children require 9 or 10.

Fat, like protein, is a necessary ingredient in diet and is of value to the body in a number of ways. It is a concentrated source of energy and supplies per unit weight more than double the energy furnished by either protein or carbohydrates. Some fats, especially vegetable oils, provide what are called *essential fatty acids*, linoleic and arachidonic acids, to the body.

Protein Value of Indian Foods

Foodstuffs	Biological value	Protein efficiency ratio
Rice	68	2.2
Wheat	65	1.5
Maize	59	1.2
Bengal gram	68	1.7
Red gram	57	1.5
Groundnut	55	1.7
Gingelly seeds	62	1.8
Egg	94	3.9
Milk	84	3.1
Meat	74	2.3
Fish	76	3.5

Fats that circulate in the blood are of many types – triglycerides, phospholipids, etc. The quantity and quality of fat consumed affects the level of *cholesterol* in the blood. Some fats like groundnut oil, sesame oil or safflower oil which contain a high proportion of polyunsaturated fatty acids do not increase blood cholesterol levels greatly. Others like coconut oil, butter, ghee and hydrogenated vegetable oils (vanaspati) contain high proportions of *saturated fatty acids* and greatly increase cholesterol levels. It is also found that consumption of smaller amounts of fat at different times causes less increase of cholesterol than a large amount of fat taken at a time.

Carbohydrates include every kind of starch and sugar. Grainfoods are largely composed of starch and foodstuffs like cane sugar and glucose are pure carbohydrates. They form the main source of energy for the body. Being a cheap source of energy, carbohydrates form the bulk of Indian diet.

A balanced diet simply means a diet that will supply all the nutrients necessary for the growth and development of the body. In India, a balanced diet has become an imperative since most Indians consume foods that provide more carbohydrates and fats than proteins.

The table below gives the amounts of the various foods that will make up a balanced diet for the average Indian. The quantity of food varies according to age and the type of work.

Composition of Balanced Diet

	Vegetarian	Non-Vegetarian	Vegetarian		Non-Vegetarian	
Foodstuffs	Amount	(g)	Calories	Protein (g)	Calories	Protein (g)
Cereals	325	325	1150	29	1150	29
Dal & Nuts	100	50	320	22	160	11
Milk	200 (ml)	100 (ml)	235	8	117	4
Root vegetables	150	150	145	2	145	2
Other vegetables	100	100	50	3	50	3
Leafy vegetables	100	100	"	"	"	"
Fruits	100	100	80	–	80	–
Egg	(1 no.)	50	–	–	85	6
Meat/Fish	–	100	–	–	195	18
Fat	50	50	450	–	450	–
Sugar/ Jaggery	30	30	120	–	120	–
Total			2550	64	2552	73

Vitamins and minerals comprise what ar called micro nutrients as distinguished from proteins,. fats and carbohydrates which ar called macro nutrients.

Vitamins can be broadly divided into fa soluble and water-soluble vitamins. Vitamin A D, E and K are fat-soluble vitamins. Vitamin and B (including Vitamins B_1, B_2 and oth B-Group vitamins) are water-soluble.

The vitamins are necessary auxiliaries i metabolism. They combine with specific pr teins, as parts of the various oxidative enzym systems which are concerned with the break down of carbohydrates, proteins and fat in th body. Thus, they are intimately involved in th mechanism which releases energy, carbo dioxide and water as the end products metabolism.

A large number of minerals is present in th body and performs a variety of functio Minerals account for about 4 per cent of t body weight. Calcium and phosphorus for about three-fourths of the mineral elemen Five other minerals – potassium, sulph sodium, chlorine and magnesium – acco for most of the rest. Many elements are present in such minute quantities that they are called *trace elements* or *micro-nutrients*.

Water is a vital constituent of diet. An average man contains about 45 litres of water (70 per cent of the body weight). The cells contain 30 litres. Three litres are in the plasma of the blood, where the suspended cells make a total volume of blood upto 5 litres. The remaining 12 litres (45–33) fill the space between groups of cells. This is tissue fluid which bathes all the cells of the body.

Water is absolutely necessary for the digestion and absorption of the foods taken in. It is the great solvent and neutraliser in the body. It is the substance in which bodily chemical reactions take place. Water is the carrier or transporting medium for all nutrients and body substances. It regulates body temperature. It is the great purifying agent in the body and removes waste materials in the form of tears, perspiration, urine and faeces. Watery substances act as lubricants in the body, especially in the joints. It is a part of all body tissues and fluids.

Acidosis, alkalosis and dehydration, oedema, fever, shock, uraemia and constipation are some of the clinical signs of inadequate salt and water in the body. *Sources:* The body obtains water mainly from the fluids we drink, from the solids we eat and also from the oxidation of energy foods. Fats and carbohydrates are oxidised in the body to carbon dioxide and water.

Cereals like rice, wheat and millets, ragi, cholam and bajra form the main food in India. Cereals are rich in carbohydrates. They generally contain 6 to 12 per cent protein, but these proteins are usually deficient in the essential amino acid *lysine*. Rice protein, however, is richer in *lysine* than other cereals.

Most cereal grains are poor in mineral content and rice is especially poor. Ragi is, however, rich in minerals, especially in calcium, and bajra in iron. Whole cereal grains are important sources of B-vitamins but in milling, rice loses the outer layers containing thiamine. Parboiled rice, even when milled, does not lose its thiamine content. Except yellow maize, which contains some amounts of carotene, no other cereal grain is a source of vitamin A or C.

Pulses or legumes as they are called, are rich in proteins. Pulse proteins, however, are of relatively low biological value because of the deficiency of the essential amino acid *methionine* but they are rich in *lysine*. Pulses are not rich sources of minerals but they are rich in B-vitamins. Dried pulses do not contain vitamin C but if they are germinated significant amounts of vitamin C are generated.

Most of the green leafy vegetables are rich sources of calcium, iron, carotene, vitamin C, riboflavin and folic acid.

Roots and tubers are rich in carbohydrates. But foods like carrot are also rich in carotene (Vitamin A); those like potato contain significant amounts of vitamin C, while foods like tapioca contain calcium also.

Other Vegetables are those which do not fall into the category of leafy vegetables or root vegetables. These vegetables are shoots, like lady's finger, cucumber, tomato, bitter gourd, snake gourd, brinjal, etc. They are fairly good sources of vitamins and minerals.

Nuts and oil seeds are good sources of fat (oil), protein and minerals and fair sources of vitamins: eg., groundnut and cashewnut.

Fruits in general are rich in vitamin C, particularly, gooseberry (amla), guava (perakka) and citrus fruits. Yellow fruits like mango and papaya contain carotene and dried fruits like dates are sources of iron.

Fish and sea foods are rich sources of protein, B-vitamins and also minerals, especially calcium.

Fleshy foods are rich sources of protein and B-vitamins, especially B_{12}. They are generally deficient in vitamin A, but liver is an exception.

Egg is a rich source of all nutrients except vitamin C. Its protein is of high quality.

Milk & milk products. Milk is an ideal food for infants and young children and a good supplementary food for all. It contains all vital nutrients, except vitamin C and iron.

Food is the only source of energy for humans. This means that our dietary sheet must change according to our requirements of energy. "If food is to perform the functions in the body it is meant to, namely producing energy, providing materials for body building, and regulating body processes, meals must be planned.

Good food selection, the cornerstone of good nutrition, must be learned as unfortunately there is no automatic built-in mechanism in human beings to direct the choice of foods which build healthy bodies and which keep them running satisfactorily from day to day."

The question what food we should eat and how much, depends on the amount of energy we need. Food energy is measured in terms of heat units called calories. A physiological calorie, also called large calorie or kilocalorie (abbreviated as Kcal), is the amount of heat necessary to raise the temperature of one kilogram of water by one degree centigrade. One gram of protein or carbohydrates yields 4 calories. One gram of fat yields 9 calories while the same quantity of alcohol yields 7.

Adults: Height-Weight Ratio

	Men Weight in kg				*Women Weight in kg*		
Height cms	*Age 20*	*35*	*50*	*Height cms*	*Age 20*	*35*	*40*
148	42.7	47.6	50.9	148	38.6	44.0	47.1
153	45.4	50.4	53.5	150	40.3	44.8	47.7
158	48.6	53.5	56.3	153	41.9	46.6	49.5
163	51.1	56.3	59.4	155	42.8	47.7	50.1
168	54.0	60.1	63.7	158	44.9	49.5	52.1
173	58.1	64.0	68.3	160	46.0	50.6	53.0
178	61.9	68.5	72.4	163	47.3	52.1	54.9
183	66.0	73.3	77.8	165	49.1	54.1	57.3

The following tables show the height-weight ratio of 1. Adolescents and 2. Adults.

Adolescents: Height-Weight Ratio

Boys			*Girls*	
Height (cm)	*Weight (kg)*	*Age (yrs)*	*Height (cm)*	*Weight (kg)*
112.4	19.2	5+	112.5	18.6
118.8	21.9	5+	117.8	20.5
123.2	24.3	7+	123.2	23.8
127.9	26.1	8+	127.2	26.0
133.3	29.2	9+	132.5	29.0
138.0	31.0	10+	138.2	32.6
142.7	34.0	11+	145.1	36.3
148.4	37.8	12+	151.5	42.5
155.0	42.4	13+	158.8	43.9
162.6	47.3	14+	154.5	45.0
165.5	51.1	15+	155.8	47.3
168.9	54.8	16+	155.8	49.0

LANDMARKS OF SCIENCE

Science, from the Latin *Scientia,* means learning or knowledge in its widest sense. In English, the word has a restricted application. It generally means physical and biological sciences.

Primitive science can hardly be called science. It was a hotch-potch of superstition, magic and rituals. Nevertheless, this hotch-potch contained elements that were destined to become the foundations of science.

At first, all natural phenomena—physical and biological—were interpreted as the operations of supernatural powers, which had to be worshipped, placated or appeased by magic rites and practices.

This primitive concept was refined and developed by the old world philosophers from Aristotle (4th cen. B.C.) to Aquinas (13th cent. A.D.). These philosophers eliminated much of the superstitious dross that had accumulated, but they could not dissociate science from metaphysics or religion.

The Greek philosophers, Aristotle in particular, considered science and philosophy a one and the same. In the Middle Ages bot science and philosophy had become boun up with theology. Aquinas, the greatest of th scholastic philosophers, regarded all the thre subjects as parts of one grand system philosophy.

It was left to Galileo to break up th misalliance and to strike out a new path fo science—the path of experimental proof. Th method initiated by Galileo was completed b Newton, and modern science was born. Th essence of the new method was an appeal sheer facts for proof.

In India too, science grew up from religio The scientific lore of the Indus Valley peop must have been very large, judging from th high degree of civilization they had attaine But we know little or nothing about the With the coming of the Aryans, we get our fi glimpses of science in India.

Theories and Principles of major scienti breakthroughs are given below in chrono gical order. A stands for Author and T for Treatise. The letters A and/or T are shown only in places where the names of the author and the treatise are mentioned together or where there is a chance of mistaking one for the other.

Yajurveda (T), c. 1000 B.C., India—Numbers named up to 10^{12} (million-million)-decimal system, addition, subtraction, multiplication, division, fractions. *Astronomy*—the Nakshatra (stars and constellations) system. Enumeration of 27 or 28 *Nakshatras* headed by Krithika (Pleiades).

Taittiriyasambita (T), 800-700 B.C., India—Progressive arithmetical series—odd and even numbers.

Panchavimsa Brahmana (T), 800-700 B.C., India—Geometrical progression.

Satapatha Brahmana (T), 800-700 B.C., India—Summation of arithmetical and geometrical series.

Sulba Sutras (T), 700-600 B.C., India, Geometry—Rules for drawing perpendiculars, squares, isosceles triangles, trapezium, etc. Combination and transformation of rectilineal figures.

Lagadha (A). Vedangajyotisa (T), 700-600 B.C., India, Astronomy.—Elaboration of calendrical science—summer and winter solstices. Rule for determining length of days between solstices.

Baudhayana (A), 600-500 B.C, India, Geometry—anticipation of the Pythagorean theorem–"The diagonal of a rectangle produces by itself both (the areas) produced separately by its two sides." Areas of triangles, parallelograms, trapezium, etc. Volumes of prism, cylinder, etc. The concept of *Algebra*—quadriatic equations.

Manava, 600-500 B.C., India—Fixing the value of π to 5 decimal places at 3.16049.

Apastamba, 600-500 B.C., India—Square root and cube root.

Katyayana, 500-400 B.C., India—Indeterminate Equations.

Kautilya (A) Arthasastra (T), 400-300 B.C., India—Mining, metallurgy, etc. - incidental eferences.

Bhadrababu (A) Kalpasutra (T), 300 B.C., ndia—Summation of geometrical series.

Euclid (A). Elements (T), 300 B.C., Greece—The first formal statement of geometrical principles.

Pingala (A). Chandah Sutra (T), 200 B.C., India—Permutations and combinations–meru prasta or Pascal's triangle.

Archimedes, d. 209 B.C. 200 B.C., Greece, Hydrostatics—the laws of floating bodies.

Aristarchus of Samos (A), c. 200 B.C., Greece—Observations and calculations regarding rotation of the Earth and revolution round the Sun.

Eratosthenes, c. 200 B.C., Greece—First measurement of the circumference of the Earth.

Chiu Chang Suan Shu (T), 2nd Cent. B.C., China Arithmetic—in nine sections—area of the segment of a circle.

Hipparchus, 2nd Cent. B.C., Greece—Measurement of the distances to the Sun and the Moon—precession of the equinoxes.

Claudius Ptolemy (A) Almagest (T) A.D. 140, Greece—A synthesis of the current system of astronomical knowledge in Europe—remained the Bible of European astronomers for a long time.

Suryasiddhanta (T), A.D. 400, India—The first important astronomical treatise in India—was continuously revised and updated by subsequent astronomers.

Aryabhata (A) Aryabhatiya (T), A.D. 5th Cent., India, Astronomy— Theory of the rotation of the Earth, epicyclic theory of planetary motions. *Mathematics—the values of the π(3.1416) and sines—alphabetical system of expressing decimal place value notation—extraction of square and cube roots—indeterminate equations of the first order.*

Brahmagupta (A) Brahmasphuta Siddhanta and Khandakhadyaka (T), A.D. 6th Cent., India, Astronomy—mean planetary motions, true planetary motions, problems of time, space, distance, lunar and solar eclipses—risings and settings of planets, Moon's cusps and shadows—conjunctions of planets—*Mathematics*—systematic operations with zero.

Varahamihira (A). Pancha Siddhanta (T), A.D. 6th Cent., India—A survey of the development of astronomy and an exposition of astronomical theories. Other astronomical works by Varahamihira include *Brahat Sambita, Leghujataka* and *Yogayatra.*

Amarasimha (A). Amarakosha (T), A.D. 6th Cent., India—A lexicon—classification and synonyms of plants, animals, metals and minerals.

Bhaskara I (A). Mahabhaskariya (T), A.D. 7th Cent., India—Mean longitude of planets—Longitude connection–Time, place, direction, spherical trigonometry, latitudes and longitudes of junctions, stars—True longitudes of planets, rising, setting and conjunction of planets, astronomical constants.

Muhammed Ibn Ibrahim (A). Sindhind and Arkand (T), A.D. 8th Cent., Middle East—Translations into Arabic of Brahmagupta's *Brahmasphuta Siddhanta (Sindhind)* and *Khandakhadyaka (Arkand).*

Jabir Ibn Hayyan (Geber), A.D. 8th Cent., Middle East—Treatise on alchemy.

Mahavira (A). Ganitasara Samgraha (T), A.D. 9th Cent., India—A comprehensive compilation in mathematics including geometry, solid mensuration, quadratic, biquadratic and cubic equations and permutations and combinations.

Al-Khwariszi (T), A.D. 9th Cent., Middle East—Theory of numbers in Arabic.

Bhaskara II (A). Siddhanta Siromani (T), A.D. 9th Cent., India—Mathematical and astronomical work—Beginnings of integral and differential calculus—the zenith of ancient Indian mathematics.

Govinda Bhagat (A). Rasahrydayd (T), A.D. 10th Cent., India—A treatise on alchemy.

Manjula (T), A.D. 10th Cent., India—Astronomical treatise—precession of equinoxes.

Al Hasan, A.D. 11th Cent., Middle East—Arab physicist—Magnification and Refraction of light.

Somadeva (A). Manasollasa (T), 12th Cent., India—Alchemy.

Gangadhara (A). Gandhasara (T), 12th Cent., India—A treatise on cosmetics.

Rasarnava (T). Rasaratnakara (T), 13th Cent., India—Treatises on alchemy.

Leonardo of Pisa (A). Liber Abaci (T), 13th Cent., Italy—An exposition in Latin of Arabic arithmetic including decimal place value numeration, zero etc. This was the main source through which Indian numerals penetrated Europe.

Rasapradipa (T), 16th Cent., India—A treatise on alchemy—one of the many treatises on alchemy prevalent in India.

Nicolas Copernicus, 1543, Poland, Astronomy— Foundation of modern astronomy—helio-centric structure of the solar system.

Georg Bauer (Agricola) (A). De Re Metalica (T), 1556, Germany—Establishment of the Science of Minerals.

Gerhard Kremer, 1559, Netherlands—Cylindrical Projection Map (Mercator's Projection) – Establishment of the Science of *Cartography* (map making).

Galileo Galilei, 1589–92, Italy – Discovery of the laws of motion – Science of *Dynamics*.

William Gilbert (A). De Magnete (T), 1600, U.K.—'The Earth itself is a great magnet'—the basis of *Magnetism* and *Electricity*.

Johannes Kepler, 1609–19, Germany—The three fundamental laws of planetary motion

John Napier, 1614, U.K., Logarithms—a new method of arithmetical calculations.

Rene Descartes, 1619, France—Formulation of *Analytical Geometry*.

Francis Bacon (A). Novum Organum (T 1620, U.K.—First formal exposition of *Induc tive Logic*.

Robert Boyle, 1661, U.K.—Distinction between chemical elements and chemical compounds; the Science of *Chemistry*.

Robert Hooke, 1665, U.K.—Hooke's law.

Isaac Newton, c. 1670, U.K.—Discovery *Calculus*.

Gottfried Leibnitz, 1675-76, Germany—Di covery of *Calculus*.

Olaus Romer, 1676, Denmark—Measur ment of the velocity of light.

Leeuwenhoek, 1676, Netherlands—loo into the microscopic world and describ bacteria.

Isaac Newton, 1687, U.K.—Laws of gravi tion and Universal laws of motion.

Christian Huygens, 1690, Netherlands—T wave theory of light.

Stephen Gray, 1729, U.K.—Electrical c ductors and non-conductors – Insulation.

Joseph Black, 1728–1769, U.K.—Theory specific heat.

Carolus Linneaus (Karl von Linne) (Systema Naturae (T), 1735, Sweden—Foun tion of the Science of *Taxonomy—Division*

From Morse Code to Spiricom

Man began to communicate by electromagnetic system only about 150 years ago.

In 1838, Samuel F. B. Morse demonstrated that clicks from an electromagnet could carry a message along a wire. From Washington to Baltimore, he sent the message, "What has God wrought?"

In 1876, Alexander Graham Bell demonstrated that wires could carry not only Morse's code, but the tones of the human voice as well, giving rise to modern telecommunications.

In 1877, Thomas Edison used a needle to capture the vibrations of a telephone mouthpiece, first on paraffin paper, then on tinfoil, then wax. He'd invented the magnetic audio and video recorders, as well as the forerunner to floppy disks.

In 1896, Guglielmo Marconi demonstrated that the dots and dashes of telegraphy could be transmitted without a wire.

In 1907, Lee DeForest proved that the "wireless" could carry the human voice too. In 1912, Edwin Armstrong made the regenerative circuits and in 1918, the super-hetherodyne-radio.

In 1926, James L. Baird demonstrated the first TV broadcasts by transmitting sound and halftone pictures. Helping refine the technology from Scotland were America's Ernst Alexanderson, Edgar Love and Vladimir Zworykin.

In 1940, Peter Goldmark demonstrated that the same TV theory could broadcast pictures in colour. He did it through the CBS (Columbia Boradcasting Service) labs in the US.

In 1969, when man first landed on the moon, it was natural that millions of people would expect to participate by means of radio and TV. And they did, via live telecast from the moon's surface.

Man's exploration of space did not stop with the landing on the moon. Photos and telemetric data have been transmitted 1.2 billion miles from unmanned spacecraft. The communications capabilities of the inhabitants of "spaceship earth" seem limitless indeed.

An even more exciting breakthrough in communication is occurring right now. After 24 years of research, America's Metascience Foundation has developed a device called Spiricom that is claimed to have communicated with "spirits of the dead". This electronic instrument is able to pick up sound waves at very hazy bandwidths and initial research has yielded some positive results, according to Metascience president George Meek. More research is now going on at the labs in Boston, Massachussets.

be plant kingdom.

Charles Augustine Coulomb, 1736–1806, France—Law of attraction and repulsion of electric charges.

William Herschel, 1738–1822, U.K.—Identi-ication of infrared rays.

Antoine Lavoisier, 1743-1794, France—Founding of *Organic Chemistry*.

C. F. Du Fay, 1753, France – Fundamental aw of electric charges – positive and negative.

Johann Ritter, 1776–1810, Germany—dentification of ultraviolet rays.

Karl F. Gauss, 1792, Germany—Conception of non-Euclidean geometry.

James Hutton (A), 1795, U.K.—Theory of the Earth (T). Founding of the Science of *Geology*.

Joseph Proust (A), 1799, France—The law of definite proportions of elements by weight in chemical compounds.

Karl F. Gauss, 1801, Germany – Mathematician and Physicist – the unit of electromagnetic induction is named after him.

Christian Doppler (A), 1803–1853 Austria—Doppler effect.

John Dalton, 1808–1827, U.K.—Modern chemical atomic theory.

Avogadro, 1811, Italy—Molecular hypothesis.

Andre Marie Ampere (A), 1814, France Laws of electromagnetic forces.

William Wollasten & Von Fraunhofer, 1814. Germany—Discovery of dark lines in solar spectrum.

Anders Angstrom (A), 1814–1874, Sweden – Angstrom unit (ten billionth of a metre).

William Smith (A), 1815, U.K. – Stratigraphic geology for dating geological formations.

Christian Oersted (A), 1820, Denmark – Discovery of electromagnetism.

Von Helmholtz (A), 1821–1894, Germany—Formulation of the law of conservation of energy—the first law of thermodynamics.

Nikolai Lobachevsky (A), 1825–26, Russia—Formulation of non-Euclidean geometry.

Janos Bolyai (A), 1825-26, Hungary—Formulation of non-Euclidean geometry.

George S. Ohm (A), 1827, Germany—Statement of the law of electric conduction (Ohm's Law).

Friedrich Wohler (A), 1828, Germany—Synthesis of an organic compound from inorganic matter.

Michael Faraday (A), 1830–31, U.K.—Discovery of electromagnetic induction.

Julius R. Von Mayer, 1840, Germany—The law of conservation of energy—First law of thermodynamics.

Schonbein, 1840, Germany—Identification of Ozone.

Rudolf Clausius, 1850, Germany—The concept of entropy—Second law of thermodynamics.

Edward Frankland, 1852, U.K.—Concept of chemical valency.

Michael Faraday, 1852, U.K.—Electrolysis.

George Boole (A), 1854, U.K.—Invention of Boolean algebra—the mathematization of logic.

Mathew F. Maury, 1855, U.S.—Founding of the science of Oceanography.

Von Bunsen and Gustav Kirchoff (A), 1855 Germany—Spectrography to identify chemical elements by their spectra.

Charles Darwin (A), 1858–59, U.K.—Origin of Species (T).

A. R. Wallace (A), 1858–59, U.K. – The Theory of Evolution—Natural Selection.

Frederich Kekule (A), 1861, Germany—Establishment of organic chemistry as the chemistry of carbon compounds.

James Maxwell (A), 1864, U.K.—The mathematical theory of electromagnetic induction

Gregor Mendel (A), 1865, Austria—Formulation of the laws of *Genetics* (heredity)

Dimitri Mendeleeff (A), 1869, Russia— periodic law and periodic table of elements

Georg Cantor (A), 1884, German Mathematics—Development of set theory, the basis of modern mathematics.

Svante Arrhenius (A), 1884, Sweden—Concept of ionisation of solutions.

Heinrich Hertz (A), 1887, Germany—Elec to-magnetic waves called Hertz waves or radi waves.

William Roentgen (A), 1895, Germany– Short wave length ray (X-ray).

Antoine Becquerel (A), 1896, France—Di covery of radio activity in uranium.

Joseph Thomson (A), 1897, U.K.—Discover of the electron.

Sigmund Freud 1900, Austria—Foundir of the Science of Psychoanalysis.

Max Planck (A), 1900, Germany—Tl quantum theory.

Ernest Rutherford (A), 1903, U.K.—Nature radio active disintegration—emission Alpha, Beta and Gamma rays.

K. E. Tsiolkovosky (A), 1903, Russia—F mulation of the fundamental principle rocket flights.

Binet & Simon, 1905, France—Intelliger Tests.

Albert Einstein, 1905–16 American General and special theories of relativity

Sockie, 1910, (W. Germany) Switzerlan Identification of Cosmic rays.

H. Kammerlingh-Onnes, 1911, Hollan Discovery of Superconductivity.

Soddy, 1912, U.K.—Theory of Isotope

Niels H.D. Bohr, 1913, Denmark—Formu tion of the concept of the planetary ato

Henry G. L. Mosly, 1913, U.K.—Establ ment of the concept of atomic number.

Bertrand A. Russel, Alfred North Whiteh 1913, U.K.—Completion of *Principia Ma matica* (T), a major contribution to symb logic.

Rutherford, 1919, U.K.—Splitting the at

Whitehead (England), Louis V. de Broglie (France) and Erwin Schroedinger (Germany), 1924-26—Formulation of wave mechanics in atomic theory.

Werner Heisenberg, 1925, Germany—Formulation of quantum mechanics in atomic theory.

Ivan Petrovich Pavlov, 1926, Russia, Biology—Conditioned reflexes.

Wolfgang Pauli, 1931, Germany—Postulation of existence of the neutrino—almost a quarter century before it was directly observed (1955).

James Chadwick, 1932, U.K.—Discovery of the neutron.

Carl D. Anderson, 1932, America—Discovery of the positron.

Murphy, 1934, America—Deuterium (heavy hydrogen). Enrico Fermi (b. Italy). Neutron bombardment of uranium, leading to the production of transuranium elements.

Lise Meitner (Austrian Swedish), Otto Hahn (German), and Fritz Strassmann (German), 1938—First nuclear fission of uranium.

J. Robert Oppenheimer and others, 1945, America—Explosion of first atomic bomb.

Willard F. Libby, 1947, America—Development of atomic time clock—a method for determining geological age, by measuring the amount of radio active carbon 14 in an organic or carbon-containing object.

John Bardeen, Walter H. Brattain and William Shockley, 1948, America—Formulation of theory of the transistor and its construction.

Atomic Energy Commission, 1951, America—Explosion of first nuclear fusion (hydrogen) bomb.

Charles H. Townes, 1954, America—Construction of first Maser.

Emilo G. Segre, American (b. Italy). Owen Chamberlain (American), 1955 America—Production and detection of the sub-atomic particles, the antiproton.

Gordon Gold, 1957, America—Construction of the first Laser.

USSR Academy of Science, 1957, Russia—First man-made satellite Sputnik put into orbit around the Earth.

James A. Van Allen, 1958, America—Discovery of belts of high energy radiation

Einstein's Last Dream

From the earliest times, man's dream has been to comprehend the complexity of nature in terms of as few unifying concepts as possible. In this context, in the history of physics, three names stand together; those of Newton, Maxwell and Einstein, as among the greatest synthesisers and unifiers of all time. Newton, some three hundred years ago, identified and unified terrestrial gravity (the force which makes apples fall) with celestial gravity (the force which keeps planets in orbit around the Sun). Maxwell, two hundred years later, unified the forces, of electricity and magnetism. He further showed that light was one manifestation of this unification.

Einstein, in 1905, unified the concepts of space and time. Eleven years later, he could show that Newton's gravity was a manifestation of this audacious unification in the sense that Newtonian gravity signified a curvature of the united space-time manifold. The question which Einstein then asked was this: Could Maxwell's electromagnetism be united with Newtonian gravity in the same way that Maxwell had united electricity and magnetism? If so, was Maxwell's electromagnetism also a manifestation of some other geometrical property of the space-time manifold just as Newtonian gravity was a manifestation of its curvature? This was Einstein's last dream. The researches of Abdus Salam and others lead us to believe that weak and strong forces can be combined with the forces of electromagnetism and gravity to form one unified force.

surrounding the Earth.

Francis H. C. Crick (Britain), James D. Watson (America) and Maurice H. F. Wilkins (Britain), 1962—Discovery of the structure of the DNA.

Thomas A. Mathews and Allen R. Sandage, 1963, America—Discovery of quasars.

David Harker and others, 1967, America—Deciphering the structure of Ribonucleic Acid (RNA).

R. Bruce Merrifield and others, 1968, America—Synthesizing of ribonucleic molecule.

Antony Hewish (Cambridge), 1968, U.K.—Identification of Pulsars.

Har Gobind Khorana, 1970, America—makes the first synthetic gene, a duplicate of a gene found in yeast cell.

H. Temin, 1971, U.S.—Discovery of reverse transcriptase for synthesizing DNA from RNA.

National Aeronautical and Space Administration (NASA), 1973, US—The first orbiting laboratory—the Skylab.

Sam Ting and others, Burt Richter and others, 1974, U.S.—Detection of pai particles.

H. G. Khorana (M.I.T.), 1976, U.S.—replicates a bacterial gene and plants it in a living cell, where, it started working. A working model of a synthetic gene.

Leon Lederman and others, 1976, U.S.—Discovery of particle with charm-confirmation of the concept.

G. S. Hurst and others, 1977, U.S.—Detection of single atoms.

P. Chambou and others, 1978, France—Discovery that large portions of the DNA of eukaryotic cells have no apparent function.

Supreme Court of U.S.A., 1980, U.S.—decides in favour of granting the first patent for inventing a life-form (a bacterium in this case) to Ananda Chakarborty.

NASA, 1981, U.S.—Maiden voyage of the reusable Space Shuttle.

Nippon Electric Company, 1982, Japan—Development of a "read-only memory" (ROM) computer microchip with the capacity of storing one million bits of memory.

P. Armbruster and G. Muncenberg, 1982, W. Germany—Creation of Element 109, the heaviest so far.

NASA, 1983, U.S.—Pioneer 10, launched in 1972, becomes the first man-made object to leave the solar system.

INVENTIONS

Scientific inventions and discoveries are important because they lead to the creation of mechanisms and artifacts which improve or easen our living conditions. However, there is often a long time lag before the inventions are transformed into working utilities.

Reviewing some 46 discoveries between 1900 and 1950, *A History of Technology* edited by Trevor I. William points out that the longest intervals – 50 to 80 years – were taken up by the flourescent lamp and the cotton picker and the shortest – one year – by Freon refrigerants.

Inventions and discoveries come about sometimes by accident but mostly by design. Roentgen discovered X-ray by accident in 1895 but the Curies laboriously pursued the radium and discovered it eventually in 1898. Most of the discoveries in the 20th century were the results of purposeful investigations and experiments, though some like penicillin were discovered accidentally.

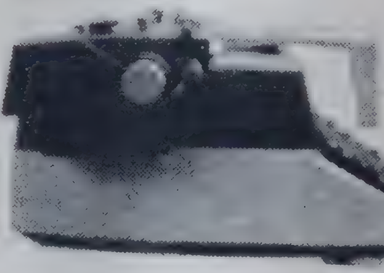
Accidental discoveries are, in fact, few and far between but even then only a scientist of unusual acumen can identify it as a discovery in the first instance. Others might have noticed the same thing before to no purpose. The classic instance is the Archimedes Principle. Thousands of people would have noticed that when they got into a full tub some water flows out. But Archimedes, alone among the thousands, could see a principle in it.

Many inventions have been made under the compulsive necessities of war. The Nazis developed rocketry and ballistic missiles to destroy England. America made the atom bomb to crush Japan. The Allies developed Radar and Sonar to protect themselves.

All these inventions have turned out to be quite beneficial in peacetime. Rocketry and missiles opened the way for space exploration and the epochal landing of men on the Moon. Atomic power is now being harnessed for peace-time uses. Radar and Sonar have been helpful in a number of ways. Sonar, for instance, has made commercial fisheries safer and more productive.

Invention	*Date*	*Inventor*	*Country*
Adding Machine	1623	Wilhelm Schickard	Germany
Aeroplane	1903	Orville & Wilbur Wright	U.S.A.
Airship (non-rigid)	1852	Henri Giffard	France
„ (rigid)	1900	G. F. von Zeppelin	Germany
Bakelite	1907	Leo H. Baekeland	Belgium
Balloon	1783	Jacques & Joseph Montgolfier	France
Ball-Point Pen	1888	John J. Loud	U.S.A.
Barometer	1644	Evangelista Torricelli	Italy
Battery (Electric)	1800	Alessandro Volta	Italy
Bicycle	1839-40	Kirkpatrick Macmillan	Britain
Bicycle Tyres (pneumatic)	1888	John Boyd Dunlop	Britain
Bifocal Lens	1780	Benjamin Franklin	U.S.A.
Bunsen Burner	1855	R. Willhelm von Bunsen	Germany
Burglar Alarm	1858	Edwin T. Holmes	U.S.A.
Car (steam)	c. 1769	Nicolas Cugnot	France
„ (Petrol)	1888	Karl Benz	Germany
Carburettor	1876	Gottlieb Daimler	Germany
Carpet Sweeper	1876	Melville R. Bissell	U.S.A.
Cash Register	1879	James Ritty	U.S.A.
Cellophane	1908	Dr. J. Brandenberger	Switzerland
Celluloid	1861	Alexander Parkes	Britain
Cement (Portland)	1824	Joseph Aspdin	Britain
Chronometer	1735	John Harrison	Britain
Cinema	1895	Nicolas & Jean Lumiere	France
Clock (mechanical)	1725	I-Hsing & Liang Ling-Tsan	China
„ (Pendulum)	1656	Christian Huygens	Netherlands
Copper working	c. 4500 B.C.	Earliest smelting site	
Dental Plate	1817	Anthony A. Plantson	U.S.A.
„ (Rubber)	1855	Charles Goodyear	U.S.A.
Diesel Engine	1895	Rudolf Diesel	Germany
Disc Brake	1902	Dr. F. Lanchester	Britain
Dynamo	1832	Hypolite Pixii	France
Electric Blanket	1883	Exhibited Vienna Exhibition	
Electric Flat Iron	1882	H. W. Seeley	U.S.A.
Electric Lamp	1879	Thomas Alva Edison	U.S.A.
Electric Motor (DC)	1873	Zenobe Gramme	Belgium
„ (AC)	1888	Nikola Tesla	U.S.A.
Electro-Magnet	1824	William Sturgeon	Britain
Electronic Computer	1824	Dr. Alan M. Turing	Britain
Film (moving outlines)	1885	Louis Prince	France
„ (talking)	1922	J. Engl, J. Mussolle & H. Vogt	Germany
„ (musical sound)	1923	Dr. Lee de Forest	U.S.A.
Fountain Pen	1884	Lewis E. Waterman	U.S.A.
Galvanometer	1834	Andre-Marie Ampere	France
Gas Lighting	1792	William Murdock	Britain
Glass (stained)	c. 1080	Augsburg	Germany
Glassware	c. 1500 B.C.	Egypt and Mesopotamia	
Glider	1853	Sir George Cayley	Britain
Gramophone	1878	Thomas Alva Edison	U.S.A.

Age of Wheelwriters



The integrated circuit technology, commonly called the silicon chip, has revolutionised the design of typewriters.

An international concern has perfected the designs of typewriters in which microprocessors are incorporated. These new devices, called ***quietwriters and wheelwriters are*** *expected to type fast large amounts of textual matter and effect a large economy in time, material and man-power.*

In an ordinary typewriter, the alphabet and symbols are arranged in a semicircular array of levers. In the electronic typewriters, the characters are on a wheel which is fixed.

In the new design, the characters are arranged along the spokes of a wheel over the paper over which typing is to be made. Another motor spins the wheel so that the right spoke position is placed over the paper corresponding to the key pressed.

Two other motors control the height of the typing ribbon and its feed rate. Because of the silicon chip technology, the entire equipment is compact and occupies the space of a small box.

One common difference between the printed and typed texts is the clearly visible closed packing of letters in a word in the printed version. For example, both thin letters like I or J and wide letters like W or M occupy exactly same space in the typed text. This defect has been removed in the new design, because the motors that control the movement of the ribbon and paper take instructions from the silicon chip incorporated in the design. Thus the output is indistinguishable from the printed matter.

In an ordinary typewriter, the force with which a letter is pressed on the paper depends on the force applied by the finger on the key. In electric and electronic typewriters, a uniform force is applied on the paper, irrespective of the force applied by the finger on the key.

But in the new design, there is a graded application of pressure with a view to presenting a pleasing output. For example, a comma will be brought out lightly compared to other letters of the alphabet. If desired, letters can be typed with sufficient force so as to offer a good profile to attract the attention of readers.

The design has a memory of about 7000 common words and even if a typist makes a mistake in spelling, it gets automatically corrected by a comparison with the memory-stored spelling.

More words can be added as desired by the user to the spelling-checker. Other facilities like recall of oft-repeated passages now available in word-processors are also incorporated in the new design.

A valuable accessory to this new typewriter is a printer converter. This enables the typed version to be brought out in printed form so that it can be reproduced by off-set printing processes. Thus publishing houses will be rid of the botheration of composing the typed version for final printing.

Gyro-compass	1911	Elmer A. Sperry	U.S.A.
Helicopter	1924	Etienne Oehmichen	France
Hovercraft	1955	C. S. Cockerell	Britain
Iron Working (Carburized)	c. 1200 B.C.	Cyprus & N. Palestine	
Jet Engine	1937	Sir Frank Whittle	Britain
Laser	1960	Dr. Charles H. Townes	U.S.A.
Launderette	1934	J. F. Cantrell	U.S.A.
Lift (Mechanical)	1852	Elisha G. Otis	U.S.A.
Lightning Conductor	1752	Benjamin Franklin	U.S.A.
Linoleum	1860	Frederick Walton	Britain
Locomotive	1804	Richard Trevithick	Britain
Loom, power	1785	E. Cartwright	Britain
Loudspeaker	1900	Horace Short	Britain
Machine Gun	1718	James Puckle	Britain
Maps	c. 3800 B.C.	Sumeria (clay tablets of river Euphrates)	
Margarine	1869	Hippolyte M. Mouries	France
Match, safety	1826	John Walker	Britain
Microphone	1876	Alexander Graham Bell	U.S.A.

Robot the Killer

UNIMATE
UNIMATE
UNIMATE

Robots in an automobile assembly line: some of them go berserk

Manufacturers in Japan are happy that robots are such a help in boosting industrial production and profitability, with virtually none of the usual "labour problems" managements face.

Japan employs some 200,000 robots which is almost 60 per cent of the world robot 'population'. But recent studies reveal that this new technological asset is also apt to go berserk occasionally under the influence of what researchers call "stray electromagnetic radiation", sometimes from other robots nearby.

The Japaness Labour ministry says that during the past eight years, some ten workers were killed by the unexpected movement of automated equipment on assembly lines.

The *Asahi Shimbun*, Japan's second-largest daily reported that the study of robot-induced accidents by the Labour ministry established that the danger from sudden erratic operation of robotised machines, triggered by stray signals emitted by other equipment caused the fatal accidents.

Micro-processor	1971	Robert Noyce & Gordon Moore	U.S.A.
Microscope	1590	Z. Janssen	Netherlands
Motor Cycle	1885	G. Daimler of Cannstatt	Germany
Neon Lamp	1910	Georges Claude	France
Night Club	1843		France
Nylon	1937	Dr. Wallace H. Carothers	U.S.A.
Paper	A.D. 105		China
Parachute	1797	A. J. Garnerin	France
Parchment	c. 1300 B.C.		Egypt
Parking Meter	1935	Carlton C. Magee	U.S.A.
Pasteurization	1867	Louis Pasteur	France
Photography (on metal)	1826	J. N. Niepce	France
„ (on paper)	1835	W. H. Fox Talbot	Britain
„ (on film)	1888	John Carbutt	U.S.A.
Porcelain	851	Earliest report from China	
Potter's Wheel	c. 6500 B.C.		Asia Minor
Printing Press	c. 1455	Johann Gutenberg	Germany
Printing (rotary)	1846	Richard Hoe	U.S.A.
Propeller (ship)	1837	Francis Smith	Britain
Pyramid	c. 2685 B.C.		Egypt
Radar	1922	A. H. Taylor & Leo C. Young	U.S.A.
Radio Telegraphy	1864	Dr. Mahlon Loomis	U.S.A.
„ (Transatlantic)	1901	G. Marconi	Italy
Rayon	1883	Sir Joseph Swan	Britain
Razor (electric)	1931	Col. Jacob Schick	U.S.A.
„ (safety)	1895	King C. Gillette	U.S.A.
Record (long-playing)	1948	Dr. Peter Goldmark	U.S.A.
Refrigerator	1850	James Harrison & Alexander Catlin	U.S.A.
Rubber (latex foam)	1928	Dunlop Rubber Co.	Britain
„ (tyres)	1846	Thomas Hancock	Britain
„ (vulcanised)	1841	Charles Goodyear	U.S.A.
„ (waterproof)	1823	Charles Macintosh	Britain

Plane as cheap As a Car

A group and Australian engineers have developed a new type of aircraft made of plastic, representing a radical change in the way airplanes are usually made.

According to a report from Perth, the airplane, called the Eagle X, is the first aircraft in the world to have its body and wings made entirely from high technology composite plastic — a mixture of carbon fibre.

The Eagle X will not have to be assembled by hundreds of skilled aviation technicians. It will simply be moulded by machine in one piece.

Unlike a conventional aircraft, the Eagle X has no tail wing. Instead, it is fitted with a forward wing. If the plane loses speed and is in danger of stalling, the forward wing will automatically pull the aircraft back into a safe position.

The new aircraft can be mastered in less time than most people take to learn to drive a motor car.

The price of the new aircraft is about that of an ordinary car. Australia has decided to mass produce the aircraft in Perth for overseas distribution — Xinhua.

Extra-large t.v. set marketed by West Germany

Sharper Television

In a move to thwart future expansion of the already sizeable Japanese share of the electronic goods market 30 European manufacturers have formed a rare consortium. Companies engaged in the production of television equipment from Britain, West Germany, France, the Netherlands, among others, have jointly developed a new transmission technology which rivals the one a Japanese giant is trying to sell in Europe. The project, named *Eureka,* is also backed by broadcasting networks in Europe as well as the U.S.

Existing TV transmission in Europe, as in India, is based on 625 horizontal lines or 120,000 individual picture elements — pixels — to build up a picture. Twenty-five such pictures are flashed every second. The ratio of the width to height of the screen is 4:3. This limits the clarity and sharpness of the picture.

To improve upon these qualities and project a high definition picture the Japanese have launched a 1,125 lines system that uses 30 pictures per second. In response, the Europeans have come up with 1,250 lines, 50 pictures a second system using a screen with 16:9 ratio. It has 480,000 pixels, four times the present number.

What makes this system more attractive than the Japanese, is not that it is indigenous but that it is compatible with the existing sets. The Japanese system would have required newly developed sets which were to follow. They were thus caught in their own trap.

Rubik Cube	1975	Prof. Erno Rubik	Hungary
Safety Pin	1849	Walter Hunt	U.S.A.
Scotch Tape	1930	Richard Drew	U.S.A.
Self-starter	1911	Charles F. Kettering	U.S.A.
Sewing Machine	1829	Barthelemy Thimmonnier	France
Ship (sea-going)	c. 7250 B.C.	Grecian ships	
„ (steam)	1775	J. C. Perier	France
„ (turbine)	1894	Hon. Sir C. Parsons	Britain

Silk Manufacture	c. 50 B.C.		China
Skyscraper	1882	W. Le Baron Jenny	U.S.A.
Slide Rule	1621	William Oughtred	Britain
Spectacles (convex)	1289		Venice Italy
Spinning Frame	1769	Sir Richard Arkwright	Britain
Spinning Jenny	1764	James Hargreaves	Britain
Spinning Mule	1779	Samuel Crompton	Britain
Steam Engine	1698	Thomas Savery	Britain
Steam Engine (piston)	1712	Thomas Newcomen	Britain
Steam Engine (condenser)	1765	James Watt	Britain
Steel Production	1855	Henry Bessemer	Britain
Steel (stainless)	1913	Harry Brearley	Britain
Submarine	1776	David Bushnell	U.S.A.
Tank	1914	Sir Ernest Swington	Britain
Telegraph	1787	M. Lammond	France
Telegraph Code	1837	Samuel F. B. Morse	U.S.A.
Telephone	1849	Antonio Meucci	Italy
„	1876	Alexander Graham Bell	U.S.A.
Telescope	1608	Hans Lippershey	Netherlands
Television (mechanical)	1926	John Logie Baird	Britain
„ (electronic)	1927	P. T. Farnsworth	U.S.A.
Terylene	1941	J. R. Whinfield, J. T. Dickson	Britain
Thermometer	1593	Galileo Galilei	Italy
Transformer	1831	Michael Faraday	Britain
Transistor	1948	Bardeen, Shockley & Brattain	U.S.A.
Typewriter	1808	Pellegrine Tarri	Italy
Washing Machine (elec.)	1907	Hurley Machine Co.	U.S.A.
Watch	1462	Bartholomew Manfredi	Italy
Water Closet	1589	Designed by J. Harrington	Britain
Welder (electric)	1877	Elisha Thomson	U.S.A.
Wheel	c. 3300 B.C.	Sumerian civilization	
Windmill	c. 600	Persian corn grinding	
Writing	c. 3500 B.C.	Sumerian civilization	
X-ray	1895	Wilhelm K. Roentgen	Germany
Zip Fastener	1891	W. L. Judson	U.S.A.

(Source: **Guinnes Book of Answers)**

ELEMENTS

An element may be defined as "a substance which cannot be broken down to yield simpler substances by ordinary chemical methods". The elements are the basic substances from which all others are built up by chemical combinations.

Elements found in nature or naturally occurring elements number 92, ranging from Hydrogen, the lightest element (Element 1) to Uranium, (Element 92) the heaviest element. One element Plutonium (Element 94) is found in minute quantities in the ores of Uranium and Thorium.

All elements heavier than Uranium ar man-made and are called *Transuranics*. The are produced either in nuclear reactors c accelerators or isolated from the debris c hydrogen bomb explosions. The first of suc elements is Neptunium (Element 93) disco vered in 1940. The latest is Element 10 discovered in 1982 by the Institute for Heav Ion Research (GSL) at Darmstadt (We Germany).* Elements up to 103 (1961) ar included in the table given below.

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* Element 108 has not so far been discovered.

All man-made elements decay quickly. Element 109, for instance, survives as such for only five-thousandths of a second and turns into Element 107 which after a short time emits an alpha particle and becomes Element 105. Next one of the protons in the nucleus is transformed into a neutron, emitting a positive electron (Positron) in the process and becomes Element 104. This element splits into two and the process of decay is halted.

Elements are numbered according to the number of protons in their atomic nuclei. But the atomic nucleus also contains neutrons which add to the mass of the atom and can affect its stability and radio activity. The atoms of the same element may contain different numbers of neutrons. These are called their isotopes. It is calculated that about 8000 isotopes may exist for the known atoms. Actually only 2000 are known today.

Elements and Symbols		**Atomic Number**	**Atomic Weight**	**Discoverer**	**Date**
Actinium	Ac	89	227.0	A. Debierne	1899
Aluminium	Al	13	27.0	F. Wohler	1827
Americium	Am	95	243	G. Seaborg & others	1944
Antimony	Sb	51	121.8	B. Valentine	1604
Argon	A	18	39.9	W. Ramsay and J. Rayleigh	1894
Arsenic	As	33	74.9	A. Magnus	(?) 1250
Astatine	At	85	210	E. Segre & others	1940
Barium	Ba	56	137.3	H. Davy	1808
Berkelium	Bk	97	249	S. Thompson & others	1949
Beryllium	Be	4	9.0	N. Vauquelin	1798
Bismuth	Bi	83	209.0	C. Geoffrey the Younger	1953
Boron	B	5	10.8	H. Davy	1808
Bromine	Br	35	79.9	A. Balard	1826
Cadmium	Cd	48	112.4	F. Stromeyer	1817
Calcium	Ca	20	40.1	H. Davy	1808
Californium	Cf	98	251	S. Thompson & others	1950
Carbon	C	6	12.0	....	Prehistoric
Cerium	Ce	58*	140.1	J. Berzelius & Wd' Hislinger	1803
Caesium	Cs	55	132.9	R. Bunsen & G. Kirchhoff	1860
Chlorine	Cl	17	35.5	K. Scheele	1774
Chromium	Cr	24	52.0	N. Vauquelin	1797
Cobalt	Co	27	58.9	G. Brandt	c. 1735
Copper	Cu	29	63.5	....	Prehistoric
Curium	Cm	96	248	G. Seaborg & others	1944
Dysprosium	Dy	66*	162.5	L. de Boisbaudran	1886
Einsteinium	E	99	254	A. Ghiorso & others	1953
Erbium	Er	68*	167.3	C. Mosander	1839
Europium	Eu	63*	152.0	E. Demarcay	1896
Fermium	Fm	100	253	A. Ghiorso & others	1952
Fluorine	F	9	19.0	H. Moissan	1886
Francium	Fr	87	223	M. Perey	1939
Gadolinium	Gd	64*	157.3	J. C. de Marignac	1880
Gallium	Ga	31	69.7	L. de Boisbaudran	1875
Germanium	Ge	32	72.6	C. Winkler	1886
Gold	Au	79	197.0	....	Prehistoric
Hafnium	Hf	72	178.5	D. Coster & G. De Hevesy	1923
Helium	He	2	4.0	J. C. P. Janssen & N. Lockyer	1868
Holmium	Ho	67*	164.9	J. Soret & M. Delafontai	1878
Hydrogen	H	1	1.0	H. Cavendish	1766
Indium	In	49	114.8	F. Reich & T. Richter	1863

Iodine	I	53	126.9	B. Courtois	1811
Iridium	Ir	77	192.2	S. Tennant	1803
Iron	Fe	26	55.9	....	Prehistoric
Krypton	Kr	36	83.8	W. Ramsay & M. Travers	1898
Lanthanum	La	57★	138.9	C. Mosanter	1839
Lawrencium	Lw	103	257.0	A. Ghiorso & others	1961
Lead	Pb	82	207.2	...	Prehistoric
Lithium	Li	3	6.9	A. Arfvedson	1817
Lutetium	Lu	71★	175.0	G. Urbain	1907
Magnesium	Mg	12	24.3	Recognized by J. Block	1755
Manganese	Mn	25	54.9	Recognized by K. Scheele	1774
Mendelevium	Mv	101	256	A. Ghiorso & others	1955
Mercury	Hg	80	200.6	....	Prehistoric
Molybdenum	Mo	42	95.9	K. Scheele	1778
Neodymium	Nd	60★	144.2	C. Von Welsbach	1885
Neon	Ne	10	20.2	W. Ramsay & M. Travers	1898
Neptunium	Np	93	237	E. McMillan & P. Abelson	1940
Nickel	Ni	28	58.7	A. Cronstedt	1751
Niobium (Columbium)	Nb	41	92.9	C. Hatchett	1801
Nitrogen	N	7	14.0	D. Rutherford	1772
Nobelium	No	102	254	Fields & others	1951
Osmium	Os	76	190.2	S. Tennant	1803
Oxygen	O	8	16.0	J. Priestley	1774
Palladium	Pd	46	106.4	W. Wollasten	1803
Phosphorus	P	15	31.0	H. Brand	1669
Platinum	Pt	78	195.1	D. de Ulloa	1735
Plutonium	Pu	94	242	G. Seaborg & others	1940
Polonium	Po	84	210.0	P. & M. Curie	1898
Potassium	K	19	39.1	H. Davy	1807
Praseodymium	Pr	59★	140.9	C. von Welsbach	1885
Promethium	Pm	61★	147	J. Marnsky & others	1947
Protactinium	Pa	91	231.0	F. Soddy & others	1917
Radium	Ra	88	226.1	P. & M. Curie	1898
Radon	Rn	86	222.0	Rutherford (thoron isotope)	1899
				E. Dorn (radon isotope)	1900
Rhenium	Re	75	186.2	E. Noddack & others	1925
Rhodium	Rh	45	102.9	W. Wollaston	1803
Rubidium	Rb	37	85.5	R. Bunsen & G. Kirchhoff	1861
Ruthenium	Ru	44	101.1	K. Claus (or Klaus)	1844
Samarium	Sm	62★	150.4	L de Boisbaudran	1879
Scandium	Sc	21	45.0	L. Nilson	1879
Selenium	Se	34	79.0	J. Berzelium	1817
Silicon	Si	14	28.1	J. Berzelium	1824
Silver	Ag	47	107.9	....	Prehistoric
Sodium	Na	11	23.0	H. Davy	1807
Strontium	Sr	38	87.6	H. Davy	1808
Sulphur	S	16	32.1	....	Prehistoric
Tantalum	Ta	73	181.0	A. Ekeberg	1802
Technetium	Tc	43	99	E. Segre & C. Perrier	1937
Tellurium	Te	52	127.6	M. von Reichenstein	1782
Terbium	Tb	65★	158.9	C. Mosander	1843
Thallium	Tl	81	204.4	W. Crookes	1861
Thorium	Th	90	232.0	J. Berzelium	1828

Thulium	Tm	69★	168.9	P. Cleve	1879
Tin	Sn	50	118.7	....	Prehistoric
Titanium	Ti	22	47.9	W. George	1791
Tungsten (Wolfram)	W	74	183.9	G. & F.d'Ethuyar	1783
Uranium	U	92	238.0	E. M. Peligot	1841
Vanadium	V	23	51.0	A. Delrio	1801
Xenon	Xe	54	131.3	W. Ramsay & M. Travers	1898
Ytterbium	Yb	70★	173.0	C. Marignac	1878
Yttrium	Y	39	88.9	J. Gabolin	1794
Zinc	Zn	30	65.4	....	Prehistoric
Zirconium	Zr	40	91.2	M. Klaproth	1789

★ Rare Earths: Fifteen elements from atomic number 57 to 71 are collectively known as Rare Earths because they are remarkably similar in their chemical behaviour.

THE WORLD OF SOUND

Radio Telescopes have opened a new world to the astronomer – a world of sound, not of sight. The two worlds are fantastically different. The Milky Way, for example, is a river of light to the eyes but it is a hissing mass to the ears.

Radio Telescopes, in fact, help us to listen in to stars or galaxies that lie far beyond the ken of the world's largest optical telescopes. They also enable us to study astral phenomena which are within the range of our optical telescopes but which are not visible owing to the haze of cosmic dust. Thus it is that we have managed to collect what little we know about the galactic centre of the Milky Way.

Sound is produced by the vibrations of an object or mechanism and transmitted in the form of waves – alternating increase and decrease in pressures. It radiates outward through a material medium of molecules, more or less like the ripples spreading out on water after some heavy object has been thrown into it.

Two properties of sound are important, namely the *pitch* or *frequency* and intensity or loudness. The pitch or frequency refers to the rate of vibration of the sound and is measured in Hertz (Hz) units. The frequency of sound is determined by the number of times the vibrating waves undulate per second. The slower the cycle the lower the pitch. The pitch becomes higher as the cycles increase in number or which is the same thing, as frequencies increase.

The intensity or loudness is measured in decibels. A decibel (db) (one-tenth of a *bel*) is a physical unit based on the weakest sound that can be detected by the human ear. It is named after Alexander Graham Bell, the inventor of the telephone. The decibel scale is logarithmic, that is, an increase of 10 db means 10 times as much, an increase of 20 db means 100 times and 30 db 1000 times etc. A light whisper may be about 10 db, a quiet conversation around 20 db, and normal talk 30 db. In comparison the electrically amplified beat music in a disco is a billion times louder than the sound of a whisper at 10 db. (see Box *Noise Scale).*

The human ear cannot generally hear sounds of frequencies higher than 20,000 vibrations per second or in modern International Units 20,000 Hz. Sounds of frequencies higher than 20,000 Hz which are inaudible are called *ultra-sonic.* Bats produce very high sound when they fly but they are at ultra-sonic frequencies from 20,000 to 100,000 Hz. So we cannot hear them. Ultra-sonic waves are an important tool of research in physics. There are also many applied uses for ultra-sonic waves, like sub-marine echo sounding, detection of flaws in casting, drilling glasses and ceramics, emulsification etc.

The speed of sound varies according to the nature of the carrier media. When we speak of the speed of sound, we ordinarily mean the speed at which sound travels in air at sea level. This is around 1088 feet per second. In water, sound travels about 5 times faster than in air. In iron and steel it is even faster, about 3 times faster than the speed in water. Speeds of sound through some selected media are indicated below: *ice-cold water*–4938 ft. per second, *brick*–11,620 ft., *granite*– 1296 ft., *hardwood*–12,620 ft. and *glass*–16,410 to 19,690 feet per second.

Supersonic speed is speed greater than that of sound in air at sea level, that is to say, around 1216 km per hour. Supersonic speed is measured in *Mach*. This unit was worked out by the Czech-born German physicist *Ernst Mach* and therefore named after him. Mach is the ratio of the speed of flight to the speed of sound, under the same conditions of pressure and density. When a plane moves at the speed of sound, it is Mach 1. When a plane moves at twice the speed of sound (supersonic), it is Mach 2. When it is less than the speed of sound it is *sub-sonic* and therefore less than Mach 1. At half the speed of sound it is Mach ½.

Sound barrier is the point at which the speed of flight equals the speed of sound. When a plane flies faster than sound, it is said to have crossed the sound barrier. When the sound barrier is passed, the speed of the aircraft produces shock waves in the atmosphere, somewhat like the bow waves produced by fast-moving ships. The shock waves in the atmosphere produce booms like thunder claps. These are called *sonic booms*. Thhe sonic booms jar on the ears of the resident population in the areas over which the plane flies but they do not trouble the passengers or the crew because the plane goes faster than the shock waves.

The human ear can safely respond to pressures up to 120 db. Any intensity higher than this is harmful and can damage the ear. This will be clear, if we examine the functioning of the ear.

The ear consists of three parts, the *outer ear*, the *middle ear* and the *inner ear*. The outer ear (*auricle*) collects the sound stimuli. These are carried through a canal to the middle ear. The canal is not straight and is the widest where it meets the outer wall of the middle ear, the ear drum. The sweat glands of the canal are modified to secrete a kind of wax–the ear wax. The middle ear is a cavity in the temporal bone which is a part of the skull. The *tympanic membrane* or the ear drum receives the sound vibrations from the outer ear.

Three minute pieces of bone bridge the cavity, the *hammer*, the *anvil* and the *stirrup* (so called from their shapes). These transmit the vibrations received by the middle ear to the inner ear. The inner ear is a small but elaborate structure which houses two distinct organs–one for hearing and the other for balance. The organ for hearing, called the *cochlea* is a snail-shaped container which transmits sound vibrations as nerve impulses to the brain. It is the brain that initiates the entire system of varied bodily responses to sound.

Thus, the brain activates the pituitary gland which in turn causes the thyroid and adrenal glands to excrete hormones. It stimulates the sympathetic nervous system which influences the heart, the stomach, the pupil, blood vessels and motor nerves which control muscle reac-

Noise Scale

1. Breathing	*10 db*
2. Wind in the trees	*20 db*
3. Quiet Conversation	*20-30 db*
4. Ticking Clock	*30 db*
5. House in a quiet street	*35 db*
6. Radio Music	*50-60 db*
7. Loud conversation	*60 db*
8. Office noise	*60 db*
9. Children playing	*60-80 db*
10. Lawn mower	*60-80 db*
11. Vacuum cleaner	*80 db*
12. Traffic Noise	*60-90 db*
13. Sports car	*80-95 db*
14. Heavy truck traffic	*90-100 db*
15. Motor Cycle	*105 db*
16. Pneumatic drill	*110 db*
17. Thunder storm	*110 db*
18. Beat Music (electrically amplified)	*120 db*
19. Aircraft noise	*90-120 db*
20. Jet takeoff (at 100 m distance)	*120 db*
21. Jet engine (at 25 m distance)	*140 db*
22. Space Vehicle launch (from a short distance)	*140-170 db*

tions. These and other reactions determine our bodily responses to sound.

A common misconception is that the ear gets accustomed to excessive noise if it is heard *continually*. Actually what happens is that the ear progressively loses its sensitivity and ability to transmit sound vibrations to the brain resulting in various degrees of deafness. Such disabilities become markedly noticeable in old age.

Sound is either music or noise-so goes an old saying. What is implied by this distinction is that whatever is pleasant to the ear is music while all that is unpleasant is noise. Such phrases as 'grating on the ears' or 'jarring on the nerves' express the discomfort we feel on hearing unpleasant sounds. It is such unpleasant impacts of sound that are collectively described as *noise pollution*.

All cities and towns labour under noise pollution in varying degrees. The worst offenders are the big cities, whose noisy traffic itself is a potent menace to hearing. A study recently conducted in West Germany showed that 2.5 million people (out of nearly 63 million) live in places where the noise level is high. This is a small percentage, as percentages go, but it indicates only those who are exposed to the greatest danger.

It does not mean that others are unaffected by noise pollution. Even noises at much lower levels can be harmful, especially during sleep and recuperation. Anything that disturbs repose or sleep is detrimental to health in the long run. Barking dogs and fighting cats can interfere with sleep whether in the town or in the country.

During work hours noise is definitely a deterrent to concentration. From 50 db onwards noise can interfere with normal voice communication. At 70 db even normal conversation becomes impossible. However, some people have become so accustomed to noise that they cannot concentrate on their work in the absence of familiar sounds like the radio. May be, these people do turn out better work in a noisy environment but they are heaping up trouble for the future.

The constant exposure to noise will steadily deteriorate the delicate parts of the middle ear, which would fail more and more in transmitting sound impulses to the inner ear, ultimately resulting in inefficient bodily responses to sound.

A study jointly conducted by the Indian Council of Medical Research and the Department of Science and Technology during the period from 1977 to 1982 showed that more than 10% of the urban population and about 7% of the rural population in India suffer from mild to severe hearing impairment. The fact that a greater percentage of the urban population – almost one and a half times of its rural counterpart – suffer from defective hearing clearly shows the dangers posed by higher noise pollution levels.

CRYOGENICS

Cryogenics is one of the youngest sciences, having come into existence only in the 20th century. The name 'Cryogenics' is derived from a Greek word meaning, 'productive of cold'. Cryogenics deals with the production of 'very low' temperatures and the study of their physical and technological consequences.

'Very low' temperatures are generally taken to mean temperatures below −150°C and thereabouts. Absolute Zero clearly belongs to the domain of cryogenics. It is apparently unattainable on Earth.

The lowest temperature that we have reached or rather produced on Earth is only one-millionth of a degree above Absolute Zero. Scientists the world over are continuously working at reaching at least one-hundredth of the degree Absolute. This is a world far below the freezing point as we understand it. In this sub-freezing world strange things happen.

All known elements freeze solid, except helium which remains liquid. Rubber becomes so brittle that it shatters like glass. Lead rings like a bell when struck. Air freezes into a solid block. All these happen not at the point of Absolute Zero but within about 10 points above it.

Helium, the second lightest of all gases (the lightest is hydrogen), has proved to be a very slippery and recalcitrant gas. Curiously enough, this gas was first found in 1868 in the

Temperature Scales

Three systems of temperature meausrement are now in use – the Celsius scale, the Fahrenheit scale and the Kelvin scale.[*] *The Celsius scale was worked out by the Swedish physicist and astronomer Anders Celsius in 1742.*

It appears to have been revised by another Swedish physicist J. P. Christen. This scale was originally known as the Centrigrade. It was re-named Celsius scale in honour of its inventor Celsius. The Fahrenheit scale was devised by the German-born physicist Gabriel Daniel Fahrenheit (1686-1736) around 1715. The Kelvin scale was pioneered by the British physicist William Thompson Kelvin (1824-1907), later Lord Kelvin.

The International System of Units recognises the Celsius and Kelvin scales. The Kelvin scale is derived from thermo-dynamics and is of special importance to scientists. The scale generally used by all is the Celsius. The unit of temperature adopted by the SI is based on the Triple Point of Water, that is, the temperature at which solid, liquid, and gaseous water are all in equilibrium. The triple point has been defined as 273.16K[†] *(Kelvin) which is equivalent to 0.01°C. Zero degree Kelvin is the Absolute Zero. This corresponds to −273.16° Celsius and −459.69° Fahrenheit.*

Absolute Zero is a thermodynamic concept, that is to say, it is based on heat energy. It is the point at which molecules have no heat energy. At this point all motion stops. Even atomic particles slow down.

Conversion Formula

Celsius to Kelvin	$K=C+273.16$
Fahrenheit to Celsius	$C=F-32\times5/9$
Celsius to Fahrenheit	$F=C\times9/5+32$

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[*] In 1730 Rene Reaumur devised an alcohol thermometer with a graduated scale 0°to 80°, 0° being the freezing point of water and 80° the boiling point. It was popular for a time but gradually went out of use.

[†] In 1967 the notation degree Kelvin (K°) was replaced by Kelvin (K).

Sun's atmosphere[*] by Sir Norman Lockyer, the British astronomer, through the spectroscope. In 1895 Sir William Ramsay found it on Earth in the uranium ore – *Clevite.* Later it was established that helium is found in all radioactive minerals and that it is released on Earth by the radioactive decay of these minerals. Ordinary air contains 1 part of helium in 200,000 parts of air.

Helium has several usable advantages. It is inert and noninflammable. It is used for inflating airships. It resisted all attempts at liquefaction till 1908, when it succumbed to Dr. Kamerlingh-Onnes at Leyden. Thus, it is the last gas to be liquefied. Liquid helium has many remarkable properties which are not wholly understood as yet. It is indispensable in cryogenics as a medium to cool other substances to temperatures near the Absolute Zero. It is the only element that we know of which refuses to solidify even in the dangerous vicinity of Absolute Zero.

One of the surprises at low temperatures is *Superfluidity.* If liquid helium is poured into a flask, separated into two chambers by a partition, it seeps through the solid partition to become level in both chambers.

Another surprising phenomenon is *superconductivity.* Superconductivity was first discovered at the University of Leyden in 1911 by Dr. H. Kamerlingh-Onnes, who was awarded the Nobel Prize in 1913 for his earlier work of liquefying helium. However, it was only in 1957 that the theory caught up with experiment. Nobel Prize winner Dr. John Bardeen (1956) of the University of Illinois and his associates presented the first theory of superconductivity in 1957. The theory is based on quantum mechanics and is highly technical. Some 300 materials – 25 elements and the rest alloys or compounds – are, now known to be superconductors.

The application of superconductivity (that is, the total disappearance of electrical resistance) to electric power engineering promises to increase capacity, reduce cost and improve reliability of power grids. A transmission line made of superconducting niobium and roughly the diameter of the arm, can carry as much power as the peak load now being used in the whole of the United States.

Cryogenics has thousands of other applications. Rapid freezing by liquid nitrogen, for instance, confers improved taste, texture, aroma, nutritive value and appearance to food articles besides reducing degradation by bacteriological, enzymatic, oxidative and chemical reactions.

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[*] The name 'helium' is derived from *helios* meaning the Sun.

Cryogenic freezing systems, being more economical than conventional systems, can be very handy for refrigerated transportation of marine food, fruits, vegetables and other perishable foods.

In medicine, human blood used for transfusion in hospitals cannot normally be preserved beyond three weeks. A new blood freezing technique recently developed using liquid nitrogen can now be used for storing blood for months or even years. Cryogenics can also be used to store marrow cells in marrow banks of hospitals.

Cryosurgery has several advantages over normal surgery. It can be used to treat Parkinson's disease and other disorders of involuntary movement. Tumours can be frozen and removed with little loss of blood. Bloodless cryosurgery can also be used in tonsilectomies and in the removal of cataracts of the eyes.

Vast quantities of natural gases are burnt every year for want of economical methods for liquefying them in the country. The gases burnt at the refineries or oil fields can be liquefied by cryogenic methods and transported to the remote corners of the country for use by those who do not have the advantage of city gas lines. Liquid methane can reduce the cost of supersonic flights by about one-third.

Work on applications of cryogenics is at present going on in nearly a dozen centres in India. They include the National Physical Laboratory, New Delhi, the Tata Institute of Fundamental Research, Bombay, the Indian Institute of Science, Bangalore, the Indian Association for Cultivation of Sciences, Jadavpur, the Physics Department of Delhi University, the Solid State Physics Labortory, Delhi, and the Indian Institute of Technology, Kanpur. (See Special Feature: Superconductivity)

TIME SYSTEMS

The earliest instruments for measuring time included many devices like the Sun dial and the water clock which were used in Egypt. These instruments were crude. In the 2nd century BC, Ctesibius, a Greek engineer of Alexandria, re-designed the ancient Egyptian water clock and made it popular.

The improved water clock was the best of the ancient timepieces. During the Middle Ages mechanical clocks run by falling weights came into vogue. These were more convenient than the water clocks but no more accurate. Booth erred by as much as half an hour per day.

In 1884 the second – the lowest unit of time – was defined as 1/86400 of the time that the Earth took to complete one rotation on its own axis or 1/86400 of a day of 24 hours. This, of course, meant that the 24-hour day was made up of 86,400 seconds.

But the Earth wobbles as it rotates. This wobbling leads to fluctuations in the time of rotation. It was therefore decided in 1960 to abandon the period of rotation as the primary unit (that is, a day of 24 hours), and to adopt the period of revolution (of the Earth round the Sun) as the basis of calculations. The second was thus re-defined as 1/31,556,925.9747 of the time that the Earth took to complete one revolution round the Sun. A year of 365 days and odd, thus consisted of about 31.5 million seconds.

In 1967 the *General Conference on Weights & Measures* recognised the atomic second as determined by the *cesium* (caesium) *atom clock* as the unit of time under the International System of Units (SI). The atomic second is defined as the time taken by the cesium electron to complete 9,192,631,770 spins.

The definition is not as accurate as it looks because the cesium electron may sometimes take more spins and sometimes less spins than the defined norm. The deviation, however, is only a few spins either way, that is, a few spins more or less than 9192 million spins. This is insignificant.

The atomic clock has two specific advantages. It is not affected by the vagaries of the atmosphere nor by the fluctuations in the rotation of the Earth. The latter has become

Greenwich Mean Time

The following zones are **fast** *on Greenwich Time by the number of hours indicated in brackets:*

Fiji, New Zealand etc. (12 hrs.). New Caledonia, New Hebrides etc. (11). Queensland, Tasmania etc. (10). Japan, Korea etc. (9). China, Hongkong, Philippines etc. (8). Singapore (7½). Java, Thailand etc. (7), Burma, Cocos Keeling Islands (6½). Bangladesh (6). India, Sri Lanka, Andaman and Nicobar Islands (5½). Pakistan (5). Mauritius, Seychelles etc. (4). Iran (3½). Iraq, Ethiopia etc. (3). Turkey, Greece, Bulgaria etc. (2). Sweden, Norway, Denmark etc. (1).

The following areas are **slow** *on Greenwich Time by the number of hours indicated:*

Iceland, Madeira etc. (1). Azores, Cape Verde etc. (2). Greenland (excluding Scores by Sound and Thule) and Eastern Brazil (3). Newfoundland, Labrador, Dutch Guiana and Uruguay (3½). Canada (East of 68°W), Greenland (Thule area), Puerto Rico etc. (4). Canada (from 68°W. to 85°W.). Jamaica, Bahama, Bahama Is., Cuba, Haiti, Peru, Panama etc. (5). Canada (from 85°W to 102°W), Costa Rica, Salvador, Honduras, Guatemala, Nicaragua, Central parts of USA and parts of Mexico (6). Canada (from 102°W. to 120°W.), mountain States of USA and parts of Mexico (7). Canada (West of 120°W.), Alaska (south east), Western States of USA and parts of Mexico (8). Alaska (north of Cross Sound), Yukon, Christmas Is. (9). Alaska (from 141°W.), Hawaii etc. (10). Aleutian Is., Alaska (west coast), Samoa, Midway Is. (11).

important in recent years. For, it has been observed from 1970 onwards that the Earth is slowing down in rotation by nearly a second every year.

Since this error has been noticed, clocks all over the world are being corrected at the beginning of every year to conform to the atomic time. The atomic clock developed by the British National Physical Laboratory has achieved a very high degree of accuracy. It is accurate to one second in 300 years.

Since January 1972, a new standard of time called the *Co-ordinated Universal Time* (UTC) has also been maintained in Paris, the headquarters of the General Conference on Weights & Measures. This is not based on any single atomic clock but on the average of atomic clock readings from 18 timing centres around the world.

The UTC does not gain or lose more than one hundred millionth of a second per day. This has whittled down the infinitesmal error of the atomic clocks to the vanishing point. It is expected that the UTC will remain absolutely correct for a quarter million years.

The system of *Standard Time* was introduced to co-relate the time systems of various countries on an international basis. For this purpose the Earth was divided into 24 longitudinal zones, each zone being 15 degrees of an arc or one hour apart in time. The zero zone is centred at Greenwich (London) which gives the GMT or the Greenwich Mean Time. The 12th zone is divided by the 180th meridian, the International Date Line.

The zones to the east of this line are numbered from 1 to 12 with the prefix *minus* indicating the number of hours to be subtracted to obtain the Greenwich Time. The zones to the west are similarly numbered with the prefix *plus* which shows the number of hours that must be added to get the Greenwich Time.

The Date line is a zigzag line that coincides more or less with the 180th meridian. When the Date line is crossed to the west the date must be advanced by one day. When the Line is crossed to the east, the date must be set back by one day. The Line is deflected between north latitudes 48° and 75° with the result that all Asia lies to the west of the line.

The twenty-four-hour time is now being increasingly used especially by railways and other transport organizations. Its great advantage is that it dispenses with the suffixes *a.m.*

and *p.m.* In the 24-hour system, day begins at midnight, the zero hour, and the hours that follow are consecutively numbered from 0 to 23.

NUMERALS

The numerals, now in everyday use, are called Arabic numerals, because it was from the Arabs that these numerals spread to Europe. Actually, they are Indian in origin and should rightly be called Indian numerals.

The concept of zero and the digital system (including decimals) are India's contributions to the science of numerals. The Arabs adopted the Indian system. The Europeans got it from the Arabs (See Landmarks of Science).

Among the authors, who were instrumental in transmitting Indian mathematical knowledge from Arab sources to Europe, the most famous was Leonard of Pisa (A.D. 1202). Other important authors were: John of Seville (1135), Adelard of Bath (1142), Robert of Chester (1142), Villedien (1240) and Sacrabosa (1242).

Roman Numerals are those used by the ancient Romans. They are letters converted into numbers 1 = 1, V = 5, X = 10, etc. They do not follow the digital system of Arab numerals. The general rules of Roman numerals are the following: (1) Repeating a letter repeats its value: XX = 10 + 10 = 20. (2) A letter placed after one of greater value adds thereto: VI = 5+1 = 6. (3) A letter placed before another of greater value subtracts therefrom: IV = 5 − 1 = 4. (4) A dash line over a numeral multiplies its value by thousand: X = 10 × 1000 = 10,000.

Some high Arabic numerals cause a lot of confusion, when used as words. The classic instance is *billion** which in U.S. is equal to *a thousand million* and in Britain to *a million-million.*

Arabic numerals and their corresponding Roman numbers ares given below:

Arabic & Roman

1	I	11	XI	30	XXX
2	II	12	XII	40	XL
3	III	13	XIII	50	L
4	IV	14	XIV	90	XC
5	V	15	XV	100	C
6	VI	16	XVI	200	CC
7	VII	17	XVII	400	CD
8	VIII	18	XVIII	500	D
9	IX	19	XIX	900	CM
10	X	20	XX	1000	M

Multiples

V 5000; X 10,000; L 50,000; C 100,000; D 500,000; M 1,000,000.

Higher Numerals

Number		US & France	UK & Other European Countries	India
1 & 5	zeros'	One Hundred Thousand	One Hundred Thousand	One Lakh
„ 6	„	Million	Million	Ten Lakhs
„ 7	„	Ten Million	Ten Million	One Crore
„ 8	„	Hundred Million	Hundred Million	Ten Crores
„ 9	„	Billion	Milliard (Thousand Million)	Hundred Crores
„ 12	„	Trillion	Billion	....
„ 15	„	Quadrillion	Thousand Billion	....
„ 18	„	Quintillion	Trillion	....
„ 21	„	Sextillion	Thousand Trillion	....
„ 24	„	Septillion	Quadrillion	....
„ 27	„	Octillion	Thousand Quadrillion	....
„ 30	„	Nonillion	Quintillion	....
„ 33	„	Decillion	Thousand Quintillion	....

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* The word 'billion' wherever it is used in this book means a 'thousand million' (American sense) unless otherwise indicated

200-Year-Old Maths Problem Solved

A mathematical problem which had been puzzling mathematicians for the past two centuries has been solved by a researcher at the Institute of Mathematical Sciences, Madras, in collaboration with two French men of numbers.

The problem in number theory whcih they have solved is "Every positive integer is a sum of fourth powers of at most 19 integers.

Dr. R. Balasubramanian of the IMS and Dr. Jean March Desbouillers and Dr. Francois Dress of University of Bordeaux, France, used the "circle method" developed by the late Srinivasa Ramanujam around 1918 to crack the problem.

The problem is actually a case of the more general one known as the "Warings problems" based on a conjecture by an English mathematician, Edward Waring, that "every (positive) number is the sum of four squares, nine cubes, 19 quartics (fourth powers), 37 fifth powers and so on....."

The three mathematicians proved the conjecture in the case of quartics by using the "circle method" for all numbers with more than 350 digits and a computer for numbers below in an algorithmic fashion.

Dr. Balasubramanian said the best example for elucidating the problem and its solution was the number 79. The only way 79 could be expressed as the sum of fourth powers is as follows: Four times two to the power of four, added to 15 times one to the power of four.

The number 79 is thus decomposed to 19 quartics, saturating the limit as set by Edward Waring, he said.

Dr. Balasubramanian said the solution was the culmination of his earlier efforts, with an imput of fresh ideas by Dr. Desbouillers and Dr. Dress. The crucial component came from a proposition he had proved in 1983-84.

R. Balasubramanian

His French collaborators, to whom he had sent his paper after they evinced keen interest in his work, deserved "all the credit of improving", upon my work appropriately", he added.

The Warings conjecture in the case of powers more than five was solved by the late S.S. Pillai of Annamalai University and a Chinese mathematician. Jing-run Chen, had proved the conjecture for the fifth power using computers and refinements to the circle theory.

Maths Olympics

For the first time, India will participate in an international mathematics Olympics to be held in Australia in 1988-89.

The annual Olympics aims at discovering mathematically talented secondary school students and encouraging them to continue their studies.

INTERNATIONAL UNITS

During the first half of the present century, there were two widely used systems of Weights and Measures – the Imperial System and the Metric System. The Imperial System prevailed in the British Empire.

The English speaking countries including the United States also adopted the Imperial System. The Metric System was followed in France and other European countries and their colonies and dependencies.

The Imperial System was derived from the old Anglo-Saxon measurements. They were rough and ready units based on standards that were readily available everywhere – the human hand, for example. In their very nature, they could never be precise and, worse, they changed from person to person and from place to place.

The *inch* was the 'knuckle of the thumb.' A *yard* was the distance from the tip of *King Edgar's* nose to the tip of the middle finger of his outstretched hand. An *acre* was the amount of land that could be ploughed in a day by a yoke of oxen. The *mile* came from the Roman legionaries. Their *milli* was 1000 paces or about 1618 yards. Paces being vastly different, the mile was eventually standardised at 1760 yards.

It was from such a conglomeration of odd units that the Imperial System of weights and measures was ultimately evolved. Although these basic units are now precisely defined, their conversion into larger or smaller units is an arithmetical torment. The mile, for example, is 12×3×220×8 inches and the short ton in 16×16×14×2×4×20 drams.

The Metric System, unlike the Imperial System, was deliberately thought out. This system was adopted by France in 1790 and propagated in other European countries by Napoleon. As adopted in France, the new unit of length was the *metre* which was equal to one-ten millionth of a quadrant of the Earth's meridian. The unit of weight or mass was the *kilogram,* which was defined as the mass of a cubic decimetre (0.1 c metre) of water. The volume represented by a cubic decimetre of water was to be called a *litre.*

In 1870 France called together a convention to evolve a unified metric system. In 1875 the Treaty of the Metre was signed in Paris. The treaty established an *International Bureau of Weights* and *Measures,* and *a General Conference on Weights* and *Measures,* which would meet periodically to adopt new definitions as the need arose.

In 1889 the metre and the kilogram were re-defined in terms of a bar of platinum-iridium alloy which was stored in a vault in Paris.

Today the metric system has been adopted by almost all nations.†

In 1954 the General Conference on Weights & Measures adopted one form of the Metric system as an internationally suitable system. In 1960 the system was named *System International de Unites* or the International System of Units, shortened to SI.

The system rests on 4 independent base units for *length, mass, time* and *temperature.* The units for length and mass are the *metre* and the *kilogram* respectively. The unit of time is the *second,* which has been defined in terms of the atomic clock. The unit of temperature is the degree Celsius (centigrade) or *Kelvin* as opposed to Fahrenheit. The conference has also accepted certain well-established units like the *minute* and the *hour* (units of time), the degree, the *minute* and the *second* as units of angular measurement and the *nautical mile* and *knot.*

The spectacular development of science and technology compelled the conference to define precisely, generally known units of measurement like length, mass or time. In addition, the conference had to adopt and define new units of measurement. The labours of the Conference in this regard led to the evolution of a complicated and highly technical international system. The definitions are stated in strict scientific jargon which the layman can hardly follow. A brief outline of the system is given below.

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† In 1971 the US decided to change over to the Metric System in ten years at the end of which the US will be predominantly but not exclusively on the Metric System. The Metric Conversion Act of 1975 legalised the change-over and set up the US Metric Board to supervise it

Table of Metric Weights and Measures

Linear Measure

10	Millimetres (mm)	=	1	centimetre	(cm)
10	centimetres	=	1	decimetre	(dm)
10	decimetres	=	1	metre	(m)
10	metres	=	1	decametre	(da m)
10	decametres	=	1	hectometre	(hm)
10	hectometres	=	1	kilometre	(km)

Area Measure

100	square millimetres	=	1	square centimetre	
10,000	square centimetres	=	1	square metre	
100	square metres (m^2)	=	1	are	(a)
100	ares	=	1	hectare	(ha)
100	hectares	=	1	square kilometre	(sq km)

Volume Measure

	one litre	=		0.001 cubic metre	
10	millilitres (ml.)	=	1	centilitre	(cl)
10	centilitres	=	1	decilitre	(dl)
10	decilitres	=	1	litre	(l)
10	litres	=	1	decalitre	(da l)
10	decalitres	=	1	hectolitre	(hl)
10	hectolitres	=	1	kilolitre	(kl)

Weight

10	milligrams (mg)	=	1	centigram	(cg)
10	centigrams	=	1	decigram	(dg)
10	decigrams	=	1	gram	(g)
10	grams	=	1	decagram	(da g)
10	decagrams	=	1	hectogram	(hg
10	hectograms	=	1	kilogram	(kg
1000	kilograms	=	1	metric ton	(t)

Cubic Measure

1000	cubic millimetres	=	1	cubic centimetre
1000	cubic centimetres	=	1	cubic decimetre
1000	cubic decimetres	=	1	cubic metre

Simple Conversion Table

Indian Units

Tolas to grams										
Tolas	1	2	3	4	5	6	7	8	9	10
Grams	11.66	23.33	34.99	46.66	58.32	69.98	81.65	93.31	104.97	116.6
Seers to kilograms										
Seers	1	2	3	4	5	6	7	8	9	10
Kilograms	0.93	1.87	2.80	3.73	4.67	5.60	6.53	7.46	8.40	9.3
Maunds to Quintals										
Maunds	1	2	3	4	5	6	7	8	9	10
Quintals	0.37	0.75	1.12	1.49	1.87	2.24	2.61	2.99	3.36	3.7

Double Conversion Tables for Weights and Measures

Note: The central figures (1 to 100) represent either of the two columns beside them, as the case may be.

Example: 1 centimetre=0.394 inch and 1 inch=2.540 centimetres.
1 metre=1.094 yards and 1 yard=0.914 metre. 1 kilometre=0.621 mile and 1 mile=1.609 kilometres.

Centimetres		*Inches*	*Metres*		*Yards*	*Kilometres*		*Miles*
2.540	1	0.394	0.914	1	1.094	1.609	1	0.621
5.000	2	0.787	1.829	2	2.187	3.219	2	1.243
7.620	3	1.181	2.743	3	3.281	4.828	3	1.864
10.160	4	1.575	3.658	4	4.374	6.437	4	2.485
12.700	5	1.969	4.572	5	5.468	8.047	5	3.107
15.240	6	2.362	5.486	6	6.562	9.656	6	3.728
17.780	7	2.756	6.401	7	7.655	11.266	7	4.350
20.320	8	3.150	7.315	8	8.749	12.875	8	4.971
22.860	9	3.543	8.230	9	9.843	14.484	9	5.592
25.400	10	3.937	9.144	10	10.936	16.094	10	6.214
127.000	50	19.685	45.720	50	54.681	80.468	50	31.068
254.000	100	39.370	91.439	100	109.361	160.936	100	62.136

Hectares		*Acres*	*Square Kilometres*		*Square Miles*	*Kilograms*		*Av. Pound*
0.404	1	2.471	2.590	1	0.386	0.454	1	2.205
0.809	2	4.942	5.180	2	0.772	0.907	2	4.409
1.214	3	7.413	7.770	3	1.158	1.361	3	6.614
1.619	4	9.884	10.360	4	1.544	1.814	4	8.818
2.023	5	12.355	12.950	5	1.931	2.268	5	11.023
2.428	6	14.826	15.540	6	2.317	2.722	6	13.228
2.833	7	17.298	18.130	7	2.703	3.175	7	15.432
3.237	8	19.769	20.720	8	3.089	3.629	8	17.637
3.642	9	22.240	23.310	9	3.475	4.082	9	19.842
4.047	10	24.711	25.900	10	3.861	4.536	10	22.046
20.234	50	123.554	129.498	50	19.306	22.680	50	110.231
40.468	100	247.108	258.995	100	38.611	45.359	100	220.462

Metric Tonnes		*Long Tons*	*Metric Tonnes*		*Short Tons*	*Litres*		*Pints*
1.016	1	0.984	0.907	1	1.102	0.568	1	1.760
2.032	2	1.968	1.814	2	2.205	1.136	2	3.520
3.048	3	2.953	2.722	3	3.307	1.705	3	5.279
4.064	4	3.937	3.629	4	4.409	2.273	4	7.039
5.080	5	4.921	4.536	5	5.512	2.841	5	8.799
6.096	6	5.905	5.443	6	6.614	3.409	6	10.559
7.112	7	6.889	6.350	7	7.716	3.978	7	12.319
8.128	8	7.874	7.257	8	8.818	4.546	8	14.078
9.144	9	8.858	8.165	9	9.921	5.114	9	15.838
10.161	10	9.842	9.072	10	11.023	5.682	10	17.598
50.803	50	49.211	45.359	50	55.116	28.412	50	87.990
110.605	100	98.421	90.718	100	110.231	56.824	100	175.980

Litres		*Gallons*	*Litres*		*Gallons*
4.546	1	0.220	31.822	7	1.540
9.092	2	0.440	36.368	8	1.760
13.638	3	0.660	40.914	9	1.980
18.184	4	0.880	45.460	10	2.200
22.730	5	1.100	227.298	50	10.999
27.276	6	1.320	454.596	100	21.997

The S.I. Units are broadly divisible into three classes.

1. Base units which form the foundations of the system.

2. Derived units which are generally formed by a combination of Base units.

3. Supplementary units which are used in angular measurement.

The special feature of the system is its coherence. A coherent set of units can be defined as one that arises, when a quotient or product of any two quantities leads to the unit of the resultant quantity. In other words, all units of the system hold together and are explicable in terms of other units.

International Units

Base unit	*Symbol*	*Year of Adoption*
METRE-Unit of length	m	1960
KILOGRAM-Unit of mass	kg	"
SECOND-Unit of time	s	1967
AMPERE-Unit of electric current	A	1948
KELVIN-Unit of thermodynamic temperature	K	1967
CANDELA-Unit of luminous intensity	cd	"
MOLE-Amount of substance*	mol	1971

*One mole (mol) is an amount of substance in grams equal to its molecular weight.

Supplementary Units

RADIAN-Plane angle	rad	1960
STERADIAN-Solid angle	sr	1960

Simple Expression in Terms of Base Units

Quantity	*Name*	*Symbol*
Area	square metre	m^2
Volume	cubic metre	m^3
Speed	metre per second	m/s
Density	Kilogram per cubic metre	kg/m^3
Specific Volume	cubic metre per kilogram	m^3/kg
Luminance	candela per square metre	cd/m^2

The base units are defined as under:

Metre. The General Conference on Weights and Measures, an international organization based in France, decided to give a new definition to the metre. Now "the metre is the length of the path travelled by light in vacuum during a time interval of 1/299,792,458 of a second".

Kilogram. It is the mass of the international prototype of the kilogram, which is in the custody of the "Bureau International des Poids et Measures (BIPM) Sevres", near PARIS. Among the base units, the unit of mass is the only one whose name, for historical reasons, contains a prefix (Kilo).

Second. It is the duration of 9192631770 periods of the radiation corresponding to the transition between the two hyperfine levels of the ground state of the Caesium-133 atom.

Ampere. It is that constant current which, if maintained in two straight parallel conductors of infinite length, of negligible cross section, and placed at a distance of 1 metre apart in vacuum, would produce between these conductors a force equal to 2×10^{-7} newton per metre of length.

Kelvin. It is the fraction 1/273.16 of the thermodynamic temperature of the triple point of water.

Candela. It is the luminous intensity, in the perpendicular direction, of a surface of 1/600000 square metre of a black body at the temperature of freezing platinum under a pressure of 101 325 newtons per square metre.

Mole. It is the amount of substance of a system which contains as many elementary entities as there are atoms in 0.021 kilogram of carbon 12.

Derived Units with Special Names

Quantity	*Name*	*Symbol*
Frequency	hertz	Hz
Force	newton	N
Pressure	pascal	Pa
Quantity of electricity	coulomb	C
Electric tension	volt	V
Electric resistance	ohm	Ω
Luminous flux	lumen	lm
Illuminance	lux	lx

The supplementary units are 1. Radian (rad) Plane angle and 2. Steradian (sr) Solid Angle.

Radian. It is the plane angle which, having its vertex at the centre of a circle, cuts off a length on the circumference of the circle equal to the radius of the circle.

Steradian. It is the solid angle which, having its vertex at the centre of a sphere, cuts off an area of the surface of the sphere equal to that of a square with sides of length equal to the radius of sphere.

Multiples and Subdivisions. Multiples and subdivisions (fractions) are indicated by appropriate prefixes. Multiples upto 1000 are indicated by the following prefixes – deca (10), hecto (100), and kilo (1000). Fractions up to 1000 are expressed as follows – deci (1/10), centi (1/100), and milli (1/1000).

For multiples and fractions above 1000 the following prefixes have been adopted.

Multiples

Tera	= 10^{12}	(1 followed by	12	zeros)
Giga	= 10^{9}	,,	9	,,
Mega	= 10^{6}	,,	6	,,
Kilo	= 10^{3}	,,	3	,,
Hecto	= 10^{2}	,,	2	,,
Deca	= 10^{1}	,,	1	,,

Fractions

Deci	= 10^{-1}	(0.1)
Centi	= 10^{-2}	(0.01)
Milli	= 10^{-3}	(0.001)
Micro	= 10^{-6}	(Decimal point, followed by 5 zeros and 1)
Nano	= 10^{-9}	(Decimal point, followed by 8 zeros and 1)
Pico	= 10^{-12}	(Decimal point, foolowed by 11 zeros and 1)
Femto	= 10^{-15}	(Decimal point, followed by 14 zeros and 1)
Atto	= 10^{-18}	(Decimal point, followed by 17 zeros and 1)

Thus a kilometre is 1000 metres and a megametre is 1,000,000 metres while a millimetre is 0.001 metre and a micrometre is 0.000,001 metre.

Very elaborate rules have been formulated with regard to notation, type to be used, prefix symbols and the exponent to be prefixed to a symbol. Sýmbols are not to be followed by full stop and do not change in the plural.

In 1969 the International Committee on Weights and Measures (CIPM), an auxiliary of the General Conference, recognised the use of some units which were strictly not part of the SI but which were in widespread use. Some of the commoner units and their SI equivalents are given below:

SI Equivalent

Length		
1 angstrom	0.1	nanometre (nm)
1 chain	20.12	metre (m)
1 engineer's chain	30.48	do
1 fathom	1.829	do
1 foot	0.304 8†	do
1 furlong	0.201 2†	kilometre (km)
1 inch	25.4	millimetre (mm)
1 link	0.201 2†	metre (m)
1 mile	1.609	kilometre (km)
1 nautical mile international	1.852	do
1 nautical mile telegraph	1.855	do
1 nautical mile U.K.	1.853	do
Area		
1 acre	4047	sq. metre
1 sq. foot	929.0	sq. centimetre
1 sq. mile	2.599	sq. kilometre
1 sq. yard	0.836 1†	sq. metre
Volume		
1 cubic foot	28.32	cubic decimetre
1 cubic inch	16.39	do centimetre
1 fluid ounce	28.41	do do
1 gallon, imperial	4.546	cubic decimetre
1 gallon US	3.785	do do

1 pint, imperial	0.586 3†	do do
Mass		
1 grain	64.80	milligram
1 hundred weight	50.80	kilogram
1 maund	37.32	do
1 ounce	28.35	gram
1 pound	0.453 6†	kilogram
1 quintal	100	do
1 seer	0.933 1†	do
1 tola	11.66	gram
1 ton	1.016	tonne
1 ton US	0.907 2†	do
Velocity		
1 foot per minute	0.005 08†	metre per second
1 foot per second	0.304 8†	metre per second
1 inch per second	25.4	millimetre per second
1 knot	0.514 4†	metre per second
	1.852	km per hour
1 knot UK	0.514 7†	metre per second
	1.853	km per hour
1 mile per hour	0.447 0†	metre per second
	1.609	km per hour
Fuel Consumption		
1 gallon per mile	2.825	litre per km
1 US gallon per mile	2.352	do
1 mile per gallon	0.354 0†	km per litre
1 mile per US gallon	0.425 1†	km per litre

† Among the rules of notation for S.I. one rule says that where a numerical value contains more than three digits, it is advisable to separate the digits into groups of three moving to the left or right of the decimal point. The separation is to be indicated by omitting a space and not by a comma as is usually done. The omission of space in item number 5 in the above table (0.304 8 instead of 0.304,8) and other similar omissions are to be treated as commas and read accordingly.

THE WORLD OF MEDICINE

The world is endowed with many systems of Medicine;-Allopathy, Homeopathy, Ayurveda, the Arabic, the Egyptian, the Graeco-Roman,..etc. While the Western system has entrenched itself with multifarious growth, there is a growing awareness of the distinctive efficacy of Eastern systems like the Ayurveda.

All ancient civilisations–Egyptian, Babylonian, Indian and Chinese—developed their own systems of medicine. Egyptian seems to have been the first and the best in the field. It had a fully developed medical system by the third millennium B.C.

We know very little of the Babylonian system and much less, almost nothing, of the Indus Valley system. The Indian system, as we know it, starts with the Rigveda (2000 B.C.). The earliest known medical treatise in China appeared around 450 B.C.

The Egyptian system, like all other ancient systems, laboured under a heavy load of superstition and magic. Yet it developed many cures that have stood the test of time. Pain-killing drugs and sedatives were well-known to the Egyptians. Queen Nefretiti is portrayed in a bas-relief as administering a pain-killing drug to her ailing husband, the Pharaoh. *Henbane,* a herb, which is known to us as a sedative source was first used by the Egyptians. *Onion* as a cure for scurvy and also as a cure for intestinal disorders is an old Egyptian prescription.

The Chinese system must have been many centuries old when the first great medical treatise appeared in China around 450 B.C. This treatise, unlike the Indian *Rigveda* and the later *Atharvaveda,* is an elaborate treatise on medicine, comparable to the *Susruta Samhita* or the *Charaka Samhita* of India. It included, among others, detailed descriptions of *acupuncture* which has received international publicity during recent times. Between 600 and 900 A.D., the Chinese system of medicine, known as *Han-Yi,* had spread to Korea and Japan and much of South East Asia.

Ancient China had developed many cures, some of which have come down to modern times. *Ephedra,* a herb which soothes coughs, was known to the Chinese 4000 years ago. *Rhubarb* as a laxative was first used in China. *Pumpkin* seeds, another Chinese contribution, is a well-known wormridder. It is now found to be effective against snail fever also.

The Graeco-Roman system was almost entirely derived from the Egyptian system. Most of its cures are of Egyptian origin. To the Greeks, we owe the first revolutionary change in medical practice–the liberation of medicine from superstition and magic. *Hippocrates,* a Greek physician known as the Father of Medicine in the West, condemned the use of charms and chants in medicine. He laid down a code of conduct for medical practitioners. Scientific therapy started with Hippocrates.

The Arabs revolutionised the science of medicine by effecting a synthesis of Indian medical system and the Graeco-Roman system. They passed on this knowledge to Europe. The influence of Arabic medicine on Europe was widespread and longstanding. *Qunun* (Canon) written by the Arab scholar *Avicenna* (11th cent. A.D.) became the primary text of medical studies in Europe and continued to be so as late as the 17th century.

Under the Mughal Emperors, Arab medicine came to India. It took root in India, under the name of *Unani* , mainly because there was so much in common between the old Indian system and the new Unani system. The term *Unani* is derived from the Sanskrit *Yavana* meaning Greek. The Unani system continues to this day in India.

The Indian System known as *Ayurveda* originated as far back as 2000 B.C. *Ayurveda* is a compound word in Sanskrit, meaning, literally, *the Science of Life.* Actually, it implies two connected ideas–the science of life and the art of living.

Ayurveda, unlike allopathy or homeopathy, does not swear by any particular principle of cure. Ayurvedic treatment covers all the principles of allopathy, homeopathy and naturopathy. "Thus", says Pandit Shiv Sharma, President of the Central Council of Indian Medicine, "the homeopathic opium which cures constipation and the allopathic opium which causes it, both fall within the Ayurvedic therapeutic measures".

According to Ayurveda, "there are three basic constituent complexes in the physiological system called *doshas.* They are *Vayu* or *Vata, Pitta* and *Kapha* or *Sleshma.* These terms, though literally they mean *wind, bile* and *phlegm* respectively, embrace much more. Among them, they sustain the whole body metabolism.

Good health implies an ideal balance between the three doshic factors. No true *mono-doshic* individual exists. It is the predominance of any particular *dosha* which marks the constitutional types of men. On this basis, humans are divided into three psychosomatic types, namely the *vataprakriti,* the *pitta-prakriti* and the *kaphaprakriti.*

The Ayurvedic physician has to evaluate the *doshic* picture of the patient and find out what type of *tridosha* predominates and set right the imbalance by prescribing drugs, diets and practices.

The western system of medicine was later named *Allopathy* by *Hahnemann* to distinguish it from his own system Homeopathy. Allo, from the Greek word *Alos,* means other or another, and implies the treatment of diseases by other drugs, that is, drugs having effects opposed to the symptoms. Homeo, from Greek word *Homos,* means treatment by drugs having the same effects as the symptoms of disease. In other words, homeopathy (literally, similar suffering) is based on the priniciple 'like cures like' while allopathy is based on the principle opposites cure opposites.

Milestones of Medicine

Invention/Discovery	Date	Inventor/Discoverer	Country
Ayurveda	2000-1000 BC	Atreya	India
Western Scientific Therapy	460-370 BC	Hippocrates	Greece
Yoga	200-100 BC	Patanjali	India
Ashtanga Hridaya	c.550 AD	Vagbhata	India
Sidhayoga	c.750	Vrdukunta	India
Anatomia*	1316	Mondino	Italy
Chemotherapy	1493-1541	Paracelsus	Switzerland

* First book on Anatomy

Modern Medicine

Circulation of blood	1628	William Harvey	Britain
Biochemistry	c.1648	Jan Baptista Van Helmont	Belgium
Bacteria	1683	Leeuwenhock	Holland
Neurology	1758-1828	Franz Joseph Gall	Germany
Physiology	1757-66	Albrecht Von Haller	Switzerland
Vaccination	1796	Edward Jenner	Britain
Histology	1771-1802	Marie Bichat	France
Stethoscope	1819	Rene Laennec	France
Embryology	1792-1896	Karl Ernest-Van Baer	Estonia (USSR)
Morphine	1805	Friderich Serturner	Germany
Chloroform as anaesthetic	1847	James Simpson	Britain
Rabies Vaccine	1860	Louis Pasteur	France
Bacteriology	1872	Ferdinand Cohn	Germany
Leprosy bacillus	1873	Hansen	Norway
Cholera, T.B. germs	1877	Robert Koch	Germany
Malaria germs	1880	Laveran	France
Diphtheria germs	1883-84	Klebs & Loffler	Germany
Aspirin	1889	Dreser	Germany
Virology	1892	Ivanovski & Bajernick	USSR, Holland
Psycho-analysis	1895	Sigmund Freud	Austria
Serology	1884-1915	Paul Ehrlich	Germany
Anti-toxins (science of immunity)	1890	Behring & Kitasato	Germany, Japan
Adrenaline	1894	Schafer and Oliver	Britain
Endocrinology	1902	Bayliss & Starling	Britain
Electro-Cardiograph	1906	Einthoven	Holland
Typhus Vaccine	1909	J. Nicolle	France
Sex hormones	1910	Eugen Steinach	Austria
Vitamins	1912	Sir F.G. Hopkins	Britain
Vitamin C	1912	Froelich Holst	Norway
Vitamin A	1913	McCollum and M. Davis	USA
Vitamin B	1916	McCollum	USA
Synthetic Antigens	1917	Landsteiner	USA
Thyroxin	1919	Edward Calvin-Kendall	USA
Insulin for Diabetes	1921	Banting & Best	Canada
Vitamin D	1922	McCollum	USA
Vitamin B1	1926	Minot & Murphy	USA
Penicillin	1928	Alexander Fleming	Britain
Cortisone	1936	Edward Calvin-Kendall	USA
D.D.T. (Dichloro-Diphenyl-Trichloroethane)	1939	Paul Muller	Germany
Rh-factor	1940	Karl Landsteiner	USA
Streptomycin	1944	Selman Waksmann	USA
LSD (Lysergic acid-diethylamide)	1943	Hoffman	Swizerland
Kidney Machine	1944	Kolf	Holland
Chloromycetin	1947	Burkholder	USA
Aureomycin	1948	Duggar	USA
Reserpine	1949	Jal Vakil	India
Terramycin	1950	Finlay & Others	USA
Cryo-Surgery	1953	Henry Swan	USA
Open Heart Surgery	1953	Walton Lillehel	USA

Poliomyelitis vaccine	1954	Jonas Salk	USA
Poliomyelitis vaccine (oral)	1954	Albert Sabin	USA
Contraceptive pills	1955	Pincus	USA
Use of artificial heart for surgery	1963	Michael de Bakey	USA
Heart Transplant Surgery	1967	Christian Barnard	S.Africa
First Test Tube Baby	1978	Steptoe & Edwards	Britain
Gene Therapy on humans	1980	Martin Clive	USA
Small Pox eradicated	1980	W.H.O. Declaration	
Genes associated with Cancer	1982	Robert Weinberg & others	USA

HUMAN BIOLOGY

The human body is a wonderful amalgam of thousands of small and delicate elements. Here is a glossary of the most essential information that will help you to explore this mysterious world.

A

Abdomen. A large body cavity lying between the thorax (chest cavity) and the pelvis. It contains organs that play a part in digestion (stomach, intestines, spleen, liver, gall bladder and pancreas) and excretion (kidneys and bladder). In women the abdomen also contains the ovaries and womb.

Abortion. The premature expulsion, from the womb, of a foetus during the first 90 days of pregnancy.

Abscess. A painful inflammation in the body tissue, usually occurring as a response to invasion by harmful bacteria.

Achilles tendon. A thick, prominent TENDON at the back of the ankle connecting the calf muscle to the heel.

Acne. An inflammatory disorder of the sebaceous glands just below the skin surface.

Acupuncture. A treatment involving the insertion of needles into the skin, practised for many centuries in China and other Far Eastern countries, and now also used in the West.

Acute. As a description of a disease, acute means that the condition occurs suddenly, lasts for a comparatively short time and is marked by severe symptoms.

Adam's apple. A bulge at the front of the neck formed by the thyroid cartilage, which is attached to the front of the LARYNX, or voice box.

Addison's disease. A disease of the ADRENAL GLANDS, studied by the English physician Thomas Addison (1793-1860), after whom it was named. The outer part (cortex) of the gland wastes away, usually after an infection, causing a deficiency of essential hormones.

Adenoids. Collections of lymphoid tissue that lie at the back of the nasal passages.

Adolescence. The period of life between puberty and adulthood.

Adrenal Glands. A pair of helmet-shaped endocrine glands up to 5 cm. (2 in.) long and situated above the kidneys.

Adrenaline. A hormone secreted by the inner part, or medulla, of the ADRENAL GLANDS.

Agranulocytosis. An acute condition in which the number of granular white cells (granulocytes) in the blood falls drastically.

Albino. An individual who lacks the pigment melanin in the skin, hair and eyes. Albinos have white hair, pink skin, a pink tinge to the eyes, and may be sensitive to light.

Alcoholism. Excessive drinking of alchohol to such an extent that it interferes with the drinker's health, home life or work.

Alimentary Canal. An alternative name for the digestive tract through which food passes to the rectum via the pharynx, oesophagus, stomach and intestines.

Alkaloids. A group of chemicals which occur naturally in plants, and which have profound and varied effects on the human body.

Allergy. An abnormal sensitivity to certain substances. Reactions range from skin rash or running nose to severe swelling of the limbs or difficulty in breathing.

Alopecia. The scientific name for baldness. Hair is usually lost from the scalp, although other parts of the body may be involved.

Amion. The thin, tough transparent membrane that encloses the foetus in the womb.

Anaemia. A fall in the number of red cells in the blood or a reduction in the amount of the haemoglobin, the oxygen—carrying pigment that they contain.

Anaesthesia. A loss of feeling in all or part of the body. It can occur as a result of nerve damage, but commonly anaesthesia is deliberately induced, usually with drugs, to enable a patient to have an operation without feeling pain.

Anaphylaxis. A sudden and severe reaction to inoculations, insect stings, injections, or certain drugs.

Aneurysm. Abnormal weakening of the wall of a blood vessel. It may be a CONGENITAL DEFECT, or due to injury, infection or ARTERIOSCLEROSIS.

Angina Pectoria. Spasmodic pain in the chest, and sometimes in the upper arms and neck, which is a symptom or heart disease.

Anthrax. A dangerous bacterial disease of sheep, cattle and other animals which can be contracted by man through handling infected animals, or their hides or carcases.

Antibiotics. A group of chemicals produced naturally by a number of fungi, bacteria and moulds which are widely used in medicine to treat bacterial infections.

Antibody, Antigen. The two major elements involved when the body is invaded by disease. An antibody is a form of the protein gamma GLOBULIN found in the blood serum. It is produced by the body as a defence against a foreign substance called an antigen, usually a protein, such as a bacterium or an alien blood cell.

Antihistamine. A drug used to treat the symptoms of an ALLERGY. It can also help to alleviate travel sickness and colds.

Antitoxin. A type of ANTIBODY that neutralises a poison (toxin) by combining with it.

Aorta. The largest artery in the body. It carries oxygenated blood from the left ventricle of the heart and distributes it to most other parts of the body.

Aphrodisiac. A substance thought to enhance sexual desire. The word is derived from Aphrodite, the Greek goddess of love.

Apoplexy. The condition generally known as a stroke. It is due to a rupture in the wall of a blood vessel in the brain (CEREBRAL HAEMORRHAGE) or to obstruction of blood circulation in the brain by a blood clot (THROMBOSIS).

Appendix. A hollow, blind-ended tube about 10 cm (4 in) long, branching off the caecum (part of the large intestine) and situated in the lower right part of the abdomen.

Arm. Accurately, the upper limb from the shoulder to the elbow; but the arm is commonly taken to include the forearm from the elbow to the wrist also.

Arteriosclerosis. A chronic disease in which the arteries become progressively narrower and less flexible as the individual ages.

Artery. A blood vessel that carries blood away from the heart to the body tissues. With the exception of the pulmonary artery, which supplies the lungs, all arteries contain blood that is rich in oxygen.

Arthritis. Inflammation of a joint. The term covers a group of diseases, the most widespread of which are osteoarthritis and rheumatoid arthritis.

Asphyxia. Unconsciousness due to interference with the breathing, which results in a lack of oxygen in the blood.

Asthma. A disease of the bronchial tubes characterised by recurrent attacks of wheezing, breathlessness and coughing.

Astigmatism. A defect in the surface curvature of the eye, which prevents light from being focused properly. Vision is distorted or blurred.

Autonomic nervous system. The part of the NERVOUS SYSTEM controlling the body's automatic functions, such as breathing and heart beat.

B

Bacterial Disease. Disease caused by harmful bacteria (commonly called pathogenic bacteria or germs).

Balance. The perception and maintenance of the body's position in relation to its surroundings.

Basal metabolic rate. The rate at which the body consumes energy to maintain vital functions, such as breathing, circulation and essential chemical activities.

Bends. A painful and often crippling condition that occurs when a person returns too quickly from a high-pressure atmosphere to one of lower pressure, as when a deep-sea

AIDS is Spreading

AIDS — Acquired Immune Deficiency Syndrome — is spreading far beyond the borders of the U.S. where it was discovered seven years ago. It claimed its first victim in India on June 9, 1986.

According to experts participating in a conference on AIDS held in Paris in June 1986, there will be 3,00,000 new cases of AIDS in 1991 alone if the virus spreads in the rest of the world as it has in the U.S. In the U.S. 74,000 new AIDS cases were forecast for the same year. It was estimated that by then more than a quarter of a million Americans would have caught the disease and 1,79,000 would have died. The U.S. hospital bill for AIDS for 1991 is forecast to be 8 billion dollars (about Rs. 10,000 crore.)

France is the worst affected European country and recorded about 700 cases by the first quarter of 1986. West Germany is next with 457, Britain third with 340 and Italy fourth with 219.

AIDS is a specific clinical entity associated with infection by a virus, a retrovirus called HTLV-III (Human T-Lymphotrophic Virus Type-III) or LAV (Lymphadenopathy – Associated Virus) or ARV (AIDS–Related Virus) depending upon the manner in which the virus was isolated by various research groups. Late last year the International Committee on Taxonomy of Viruses collectively named it Human Immuno deficiency Virus (HIV).

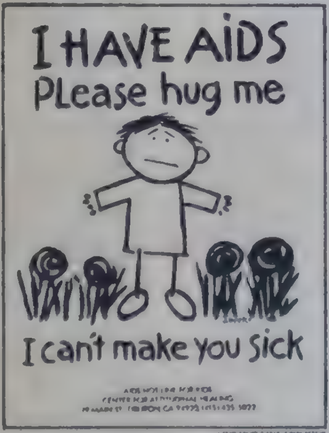
When a Child has AIDS

Children with AIDS has became an alarming problem with the West. The innocent young ones ostracised by home and society evoke universal sympathy and concern.

There is a special urgency about treating children with AIDS. The disease has a shorter incubation period in children than it has in adults, sometimes erupting in a matter of months rather than years. And it can be harder to diagnose. Yet, experts agree, the AIDS-infected child should get help early—just as the first subtle symptoms appear.

Only about half of babies born to AIDS-infected mothers actually have been infected themselves. But it can be hard to pick them out. The conventional blood tests detect AIDS virus antibodies. But they don't tell whether the antibodies came naturally from the mother's bloodstream or whether the child has produced them himself as the result of infection.

Tests to detect the AIDS virus itself would solve the problem, but currently they are complicated and sometimes unreliable. In children, moreover, symptoms don't usually appear until after the first three or four months of life.



Love might be the hardest thing to get: An AIDS poster.

After that, the child might develop a recurrent respiratory infection or fluid in the ears, but unless the physician is wary he may not think to test for AIDS. "Pediatric AIDS in the first year of life is the most difficult (diagnosis) in all of AIDS," says Parks.

Children with AIDS are more likely to get bacterial infections than the viral and fungal diseases adults get because they haven't had time to develop antibodies against bacteria. An unusual affliction, lymphoid interstitial pneumonia, appears almost exclusively in AIDS kids.

One reason for this susceptibility to bacteria is that, in youngsters, AIDS tends to destroy not only the T4 lymphocytes but also the "B" lymphocytes that manufacture the antibodies that are targeted to combat bacteria.

diver returns too quickly to the surface.

Beri-Beri. A deficiency disease caused by a lack of vitamin B_1 (thiamine) in the diet.

Biceps. Any muscle in which two separate masses of muscle fibres operate through a single tendon.

Bile. A bitter yellow-green fluid that assists in the digestion and absorption of fats and helps to neutralise the stomach acids once they reach the intestines.

Birthmark. A patch or swelling on the skin that is present at birth, also known as a naevus. It may be a pigmented area (mole) or a blood-vessel birthmark (haemangioma).

Bladder. A hollow organ with muscular walls that stores urine before it is excreted.

Blister. A bubble of fluid in the skin, usually caused by rubbing or burning.

Blood. The body's transport system—a fluid which carries oxygen and essential nourishment along the arteries to every living tissue in the body, removing through the veins carbon dioxide and waste products of metabolism such as urea.

Blood Groups. Blood can be classified in four main groups: A, B, AB and O. The group to which a person's blood belongs depends on the presence or absence of factors A and B in the red cells, and the presence or absence of factors anti A and anti B in the SERUM.

Blood Pressure. The pressure exerted by the blood on the arterial walls. It is determined by the power of the heart's pumping action and the resistance of the smaller blood vessels.

Blood Transfusion. The injection of blood from one person, the donor, into the circulatory system of another.

Blue baby. A baby whose skin and lips have a bluish tinge because of an inborn heart defect.

Boil. A tender, pus-filled swelling of the skin caused by bacterial infection, usually staphylococcus germs.

Botulism: A form of food poisoning caused by a toxin produced by bacteria.

Brain. The centre of the nervous system and the co-ordinator of all the body's conscious and unconscious activities.

Breast. The mammary or milk-producing organ of women. The breasts develop during puberty in response to the stimulus of hormones.

Bronchitis. Inflammation of the bronchi, the tubes leading from the trachea to each lung.

Brucellosis. A common disease of cattle caused by the bacterium **Brucella** which can be passed on to man by contact with an infected animal or its carcase, or by drinking infected milk.

Bruise. A swelling or surface discoloration of the skin, also known as a contusion, which results from a blow or pressure.

Bunion. A painful deformity of the big toe in which the toe is twisted so that the nail faces sideways.

Burns and scalds. Death or injury to the body tissues caused by heat — burns are from dry heat, scalds from moist heat.

Bursa. A small fluid-filled pouch found in parts of the body exposed to pressure or friction.

C

Caecum. The first part of the large intestine.

Callus. A hard, thickened area of skin which develops where there is regular pressure or friction — for example, on the palms of the hand or soles of the feet.

Cancer. Any of a group of diseases, caused by the uncontrollable, abnormal multiplication of cells. Cancer may affect any tissue including the blood, when it is known as leukaemia. If it occurs in the skin or mucous membranes the growth is described as a carcinoma; a sarcoma is cancer of CONNECTIVE TISSUE, including bones and muscles.

Capillary. A minute thin-walled bloo vessel.

Carbohydrate. A chemical compound o carbon, hydrogen and oxygen which forms one of the main constituents of food.

Carbon monoxide poisoning. Th poisoning of tissues through inhalation o carbon monoxide, a gas commonly produced by car exhausts and poorly ventilated cok fires.

Carbuncle. A painful, pus-filled infectio of the skin usually caused by the bacterium **Staphylococcus aureus.**

Carcinoma. See Cancer.

Caries. Decay of a tooth or a bone. Dent caries is one of the commonest human diseases.

Carpus. A group of eight small bones th form the wrist.

Cartilage. Flexible, white CONNECTIVE TISSUE, which lines the joints of the body and forms the stiffening in the ears, nose tip and the larynx.

Cerebellum. The area of the brain which co-ordinate the body's movements.

Cerebral haemorrhage. Bleeding inside the brain from a broken blood vessel. The rupture deprives an area of brain tissue of its blood supply causing permanent damage.

Cerebrum. The largest part of the brain composed of two similar sized cerebral hemispheres, left and right.

Cervix. The neck of the WOMB which projects into the upper part of the vagina.

Chagas's disease. A type of SLEEPING SICKNESS that occurs in Central and South America.

Chest. The part of the body between the neck and the abdomen.

Chicken pox. An acute infectious disease, common in childhood. Chicken pox, or varicella, is caused by a virus and is highly contagious, producing skin eruptions that start as red marks and develop into blisters.

Cholera. An acute infectious disease caused by the baterium **Vibrio cholerae.**

Cholesterol. A substance present in the blood and body tissues, as well as in many foods.

Chorea. Involuntary, muscular twitching movements which, in severe cases, may affect all muscles except those moving the eyes.

Chronic. As a description of a disease, chronic means that the condition lasts for a long time and changes only slowly.

Cimetidi. A recently developed drug for treating peptic ULCERS.

Cirrhosis. A chronic disease of the liver in which liver cells are progressively destroyed and replaced by fibrous or fatty tissue.

Clavicle. The collar bone which connects the shoulder blade to the breast bone and helps to support the arm.

Cleft palate. A CONGENITAL DEFECT in which the two sides of the palate fail to grow together, producing a split in the roof of the mouth.

Clitoris. A small mass of sensitive erectile tissue in women, located at the top of the VULVA.

Clomiphene. See Fertility Drugs.

Cold. See COMMON COLD.

Colic. Severe intermittent abdominal pain caused by muscular spasms in one of the tubes in the abdomen.

Colon. The lower part of the digestive tract comprising a muscular tube about 1.5 m (4 ft 6 in.) long.

Coma. A state of deep, impenetrable, unconsciousness that may be caused by disease.

Common Cold. An infectious disease of the respiratory system, particulary the nose, throat and bronchi. A large number of viruses are known to cause colds, and new cold causing viruses continue to be discovered.

Congenital defect. Any abnormal condition that exists at birth.

Conjunctiva. The moist membrane that covers the eyeball and lines the eyelids.

Connective tissue. The TISSUE that forms the fibrous supporting skeleton of the organs of the body.

Contraception. The prevention of conception or pregnancy.

Corn. A painful thickening of the skin on or between the toes, usually the result of pressure from poorly fitting shoes.

Cornea. The transparent covering through which light enters the eyeball.

Coronary heart disease. Narrowing or blockage of the coronary arteries, which supply blood to the heart muscle.

Corticosteroids. A group of hormones produced by the cortex of the adrenal glands.

Cot death. Unexpected death of an infant at home, often in the cot a night.

Cough. A sudden, explosive expulsion of air from the air passage, which occurs as a reflex response to an irritant or a blockage in the windpipe or bronchial tubes.

Cramp. A spasmodic, painful contraction of a muscle, often occurring as a result of excessive exercise.

Cranial nerve. Any of the 12 pairs of nerves that connect directly and independently, with the brain.

Cranium. Another name for the skull, the group of bones which interlock to form the framework of the head.

Cretinism. A congenital condition of arrested development.

Cryosurgery. A technique used in SURGERY in which tissue is destroyed by applying extremely low temperature.

Cushing's syndrome. A group of symptoms caused by an excess of cortisone and other adrenal hormones in the body.

Cuticle. The protective layer of the skin, also known as the epidermis.

Cyst. A closed sac filled with liquid or semi-solid matter which forms a lump in organs, tissue or body cavities.

Cystitis. Inflammation of the urinary bladder, usually marked by an urge to pass urine frequently and by a painful burning sensation during urination.

D

Dandruff. A condition in which small flakes of dead skin accumulate in the hair.

Cancer Detection

Early detection of cancer is the most effective way of fighting it. American Cancer Society recommends the following time table:

1. For women between 20 and 65 (and those under 20 who are sexually active), the Pap test for cervical cancer may be done once every three years (after two negative tests a year apart).

2. Women should have breast X rays, once between 35 and 40 to establish a reference, then at the advice of a physician until 50, and every year after 50. Women should continue to give themselves breast examinations each month.

3. As Lung Cancer is still so resistant to cure, early detection by annual chest X rays or Sputum Cytology, an analysis of lung cells contained in sputum, is useless. Rather prevention, especially by avoiding smoking, is advised.

4. Examination of the rectum and colon with a sigmoidoscope, is suggested every three to five years (after two negative tests a year apart) for people over 50.

5. Annual guaiac slide tests on stool to detect intestinal bleeding should be done from ages 40 to 50.

6. General checkup for cancer, including physical examination of the breasts and pelvis; testicles and prostate, thyroid, lymph nodes, mouth and skin, is suggested once every three years between ages 20 and 40, and annually thereafter.

(Source: TIME)

Deafness. There are two types of deafness Conductive deafness and nerve deafness. The first type occurs when something goes wrong with the passage of sound waves in the ear Nerve deafness results from damage to the auditory nerves, which may arise from tumour, haemorrhage or injury in the skull

Death. The usual definition of death is the absence of essential activity in the brain fo several hours.

Deficiency disease. A condition caused b an inadequate intake of essential foods i particular vitamins and minerals.

Delirium. Acute mental disturbance i which confusion, disordered speech, excitement and restlessness occur, sometimes wit hallucinations.

Dementia. Loss or impairment of ment capacity, often associated with emotional o behavioural disturbances, that usually develops gradually.

Dermatitis. Inflammation of the skin. De matitis can have many causes including, f example, ALLERGY, bacterial infection, chemical irritants or skin disease.

Diabetes. A disorder in which the bo cannot control the use of sugars as an ener source. It occurs when insufficient quantiti of the hormone INSULIN are produced by th pancreas.

Diaphragm. A muscular partition whi separates the chest and the abdomen, ar plays an essential part in breathing.

Diarrhoea. Frequent and excessive di charge of watery faeces from the bowels.

Diastole. The regular relaxation of th heart after each contraction, cf. SYSTOLE.

Digestion. The breakdown of food in th digestive tract into simpler elements so that can be absorbed into the bloodstream a used for energy, repair of tissues, and grow

Diphtheria. An acute infectious disea caused by a bacterium.

Diverticular disease. A defect in the lar intestine, or colon, in which pouches of th inside lining are forced out through muscular layers of the wall.

Dropsy. See Oedema.

Drugs. Any chemical compound used treat or prevent diseases, relieve symptoms help in diagnosis.

Dumbness. Loss of speech. This may the result of disorder of the brain (aphasia) of the nerves of the larynx (aphonia).

Duodenum. The first 25 cm of the small intestine.

Dwarfism. A condition of seriously retarded or stunted growth.

Dysentery. A serious infection of the intestinal tract that produces frequent attacks of diarrhoea, with blood and mucus in the stools.

E

Ear. As well as being the organ of hearing, the ear is also concerned with balance.

Eczema. A red, itchy skin rash, often accompanied by blisters.

Elbow. The hinged joint between the humerus (upper arm bone) and the radius and ulna (forearm bones).

Electrocardiogram. A tracing of the electrical activity in the heart. An electrocardiogram (ECG) is made by a machine called an electrocardiograph.

Electroencephalogram. A tracing of the electrical activity in the brain. An electroencephalogram (EEG) is made by a machine called an electroencephalograph.

Embolism. Blockage of a blood vessel by material (an embolus) that has come from elsewhere in the body.

Emphysema. A disease of middle or old age in which the lung's alveoli, or air sacs, are enlarged.

Encephalitis. An acute inflammation of the brain occurring in various forms and caused by a dozen or so different viruses.

Endemic disease. A disease that persists in a particular area or among a particular population group.

Endocrine gland. A gland, sometimes known as a ductless gland, that secretes a HORMONE directly into the blood.

Endogenous opioids. A group of recently discovered naturally occurring 'chemical messengers' (peptides) in the brain which when released at the nerve synapse appears to have a pain-killing effect.

Endothelium. A MEMBRANE that lines body cavities and blood and lymph vessels.

Epidemic. An outbreak of infectious disease that affects many people at the same time.

Epidermis. The outermost layer of the skin.

Epiglottis. A flap of fibrous cartilage at the opening of the LARYNX (the glottis).

Epilepsy. A periodic loss of consciousness, sometimes accompanied by convulsive fits, caused by sudden, excessive discharges of electrical energy in brain cells.

Episiotomy. An incision in the skin and superficial muscle of a woman's perineum during childbirth.

Epithelium. The layer of cells that covers the external and internal surfacs of the body.

Ergotism. A condition resulting from an overdose of ergot, a drug used to contract the muscles of the womb after childbirth.

Erysipelas. A painful, highly infectious skin disease, characterised by dark red, patchy inflammation.

Errythema. Unusual redness of the skin caused by a collection of blood in the small surface vessels (capillaries) of the skin.

Erythrocyte. A red bloodcell which owes its colour to the HAEMOGLOBIN.

Excretion. The elimination of waste matter from the body.

Exophthalmos. Abnormal protrusion of the eyeball, sometimes the result of a tumour or an infection.

Eye. Light reflected from objects enters the eyes and stimulates nerves which feeds the brain with information it interprets as visual images.

F

Faeces. Residue of food together with bacteria, cells from the intestinal lining, and secretions (mainly from the liver) which is discharged from the bowels.

Fallopian tubes. Two muscular tubes, or oviducts, one on each side of the female abdomen. They conduct ova (eggs) from the ovaries to the womb.

Fat. An essential food, either animal (saturated fat) or vegetable (unsaturated) in origin.

Femur. The thighbone. The entire weight of the upper part of a person's body is borne by the two femora, which are the largest, longest, and strongest bones in the body.

Fertility drugs. Term describing therapeutic substances which stimulate ovulation in women whose infertility is due to a malfunction in the reproductive system.

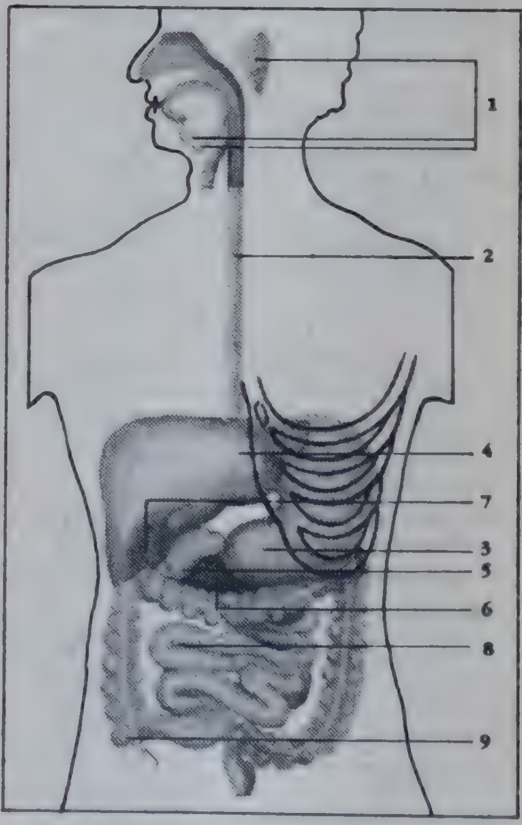
Fever. Abnormal increase in body temperature. It is usually caused by a bacterial or viral infection, and is the body's natural reaction to an invasion.

Fibula. The more slender of the two long bones of the lower leg.

How Food is Digested

Within a few minutes of being swallowed, some of the food has been propelled into the first part of the intestine, which is called the duodenum, and the stomach is normally empty within two to three hours of a meal.

The average time taken for digestion to be completed in the small intestine is approximately 12 hours. Food is propelled through the intestines by a regular series of muscular contractions, or peristaltic waves, which squeeze the intestinal contents like toothpaste in a tube.



1. *Salivary gland: Located in the cheeks, under the tongue and in the lower jaw, these produce saliva, a digestive juice which helps to lubricate food and break it down to simple sugars.*
2. *Oesophagus: A muscular tube which carries food from throat to stomach. It is closed at each end by a sphincter, or ring of muscle.*
3. *Stomach: A storage place in which food is churned, and where the digestive process is continued by the mixture of acid and peptic enzymes secreted by glands in the stomach lining. Stomach acid also destroys bacteria that may have been swallowed with the food.*
4. *Liver: The products of digestion (excluding fats) are absorbed into the bloodstream and carried along the portal vein to the liver. There they are stored, or used in the synthesis of chemicals needed by the body.*
5. *Duodenum: The first 25–30 cm (10–12 in) of the small intestine, where to the mixture of food and enzymes from the stomach is added the digestive juices from pancreas, gall bladder and glands in the intestinal walls.*
6. *Pancreas: This produces pancreatic juice which flows into the duodenum to help digest proteins, fats and carbohydrates. Pancreatic juice is produced continuously, but the flow is increased by the influence of hormones released when food enters the duodenum.*
7. *Gall bladder: A pear-shaped sac about 10 cm (4 in) long. Situated under the liver, it stores and concentrates bile secreted by the liver. After a meal, the bile is released into the duodenum to help with the digestion of fats.*
8. *Small intestine: A coiled muscular tube about 7 m (23 ft) long, made up of the jejunum and ileum. Here digestion is continued and the resulting products are absorbed into the blood-stream.*
9. *Colon: A 1.4 m (4 ft. 6 in) long tube where water is absorbed to leave solid faeces—consisting of the remains of undigested food, cells shed from the intestinal lining, bile salts, and acids from the liver.*

Filariasis. Tropical disease caused by the presence of parasite filariae, or thread worms.

Fistula. An abnormal passage joining two hollow organs, or leading from an organ to the surface.

Fit. Term usually used to describe a convulsion. It is also sometimes applied to EPILEPSY or hysteria.

Flatulence. Condition in which air or gas (flatus) accumulates in the stomach or intestines.

Flouride. A compound of the chemical element fluorine and another element such as potassium or sodium.

Foetus. An unborn baby two months or more after conception.

Follicle. A minute cavity or sac found in many parts of the body.

Fontanelle. A soft area of cartilage on a baby's head where the skull bones have not joined.

Foot. The foot contains 26 bones and 33 joints, held together by more than 100 ligaments.

Fracture. A break in a bone. There are two main types of fracture: a simple fracture when the skin is not broken and the surrounding tissues are not damaged, and a compound or open fracture when the tissues and skin are both damaged.

Freckle. A brown skin spot commonly found on the face and arms in fair complexioned people.

Frostbite. Damage to skin and tissues caused by prolonged exposure to low temperatures.

Fungus disease. Disease caused by fungi growing in the tissues of the body.

G

Gall bladder. A pear-shaped reservoir (7.5-10 cm (3-4 in) long, in which BILE secreted by the liver is stored before being passed to the intestine by the bile duct.

Ganglion. A group of nerve cells which act as a relay centre for interconnecting nerve fibres.

Gangrene. Death of tissues due to a lack of oxygen in the cells, commonly caused by the blood supply having ceased.

Gastric juice. A juice that is secreted by the many small glandular cells which line the stomach.

Gastro-enteritis. Inflammation of the lining of the stomach and intestines. Symptoms include fever, diarrhoea and vomitting.

Genetic counselling. See Hereditary Diseases.

German measles. See Rubella.

Gigantism. Overgrowth of the long bones of the arms and legs before adulthood.

Gingivitis. Inflammation of the gums that manufacture chemical compounds essential to the body's functioning.

Glandular fever. See Mononucleosis.

Glaucoma. A disorder of the eyes caused by an increase in the pressure of the fluid in the eyeballs.

Globulin. A large, complex protein molecule that is a constituent of blood.

Goitre. Abnormal swelling of the thyroid gland. This gland, situated in the front of the neck, controls the body's chemical process or metabolism.

Gonads. The reproductive glands – OVARIES in the female and TESTES in the male.

Gonorrhoea. A veneral disease caused by the gonococcus bacteria.

Gout. A disease caused by the production of excessive amounts of uric acid in the body due to a disorder in the body's chemical processes.

Growth. The process of enlargement that takes place from conception until the age at which the individual reaches physical maturity.

H

Haemoglobin: A compound of protein and iron in the red cells which gives blood its colour and which carries the oxygen from the lungs to the body tissues, returning with the waste product carbon dioxide.

Haemophilia: An inherited disease in which the blood clots abnormally slowly.

Haemorrhage: Loss of blood from the blood vessels. If the bleeding is severe and causes an adult victim to lose more than 1 litre (2 pints) of blood, shock will result.

Haemorrhoid: Enlarged vein in the wall of the ano-rectal canal (the end part of the bowel).

Hair: A filament-like structure of dead cells filled with a tough protein called keratin.

Halitosis: Persistent bad breath. It may be caused by tooth decay, by infection of the gums, tonsils, nose, sinuses or lungs, by kindey malfunction or by diseases of the stomach and intestines.

Hangover: The after-effects of drinking too much alcohol.

Hare-lip: Congenital defect of the upper lip, caused by the two sides of the face failing to unite before birth.

Hay fever: Allergic condition with symptoms resembling those of a common cold.

Headache: The brain itself is insensitive to pain, but the nerves leading from the blood vessels of the brain can produce painful sensations, and are very sensitive to pressure changes inside the skull.

Heart: Muscular organ in the chest pumping the blood to all parts of the body at an average 70 beats a minute.

Heart attack: Layman's term for a coronary thrombosis, in which one of the arteries supplying the heart muscle becomes blocked (See Coronary Heart Disease).

Heartburn: Common term for a type of indigestion, marked by a burning sensation in the chest, in which the stomach's acid contents regurgitate into the OESOPHAGUS.

Heat Stroke: Disorder of the Body's temperature-control mechanisim, in which more heat is gained from the surroundings than is lost.

Hepatitis: Inflammation of the liver, usually as a result of virus infection, though poisonous chemicals, drugs and some other diseases can occasionally be the cause.

Hereditary disease: Any disorder produced by genes that an individual inherits from his parents.

Heredity: The principle by which inborn features of an individual are passed on to his or her offspring, and so handed down through generations of a family.

Hermaphrodite: An individual whose body contains both male and female tissue.

Hernia: A condition in which the muscle or other covering tissue surrounding an organ weakens, and a portion of the organ bulges through.

Herpes: Inflammation and blistering of the skin.

Hiccup: A spasmodic, involuntary contraction of the DIAPHRAGM.

Hip: Major weight-bearing ball-and-socket joint formed where the head or ball of the FEMUR meets the socket of the PELVIS.

Histamine: A chemical substance present in all tissues that plays a part in the body's defence mechanism and is responsible for inflammation and for the symptoms of ALLERGY.

Hives: A common name for urticaria, an allergic reaction of the skin.

HODGKIN's Disease: A cancer that affects lymph nodes, bone marrow, liver and spleen. It is named ater Thomas Hodgkin (1798–1866) the English physician.

Homoeopathy: An unorthodox system of treatment based on the idea that 'like cures like'. It was founded in Germany in 1796 by Samuel Hahnemann (1755–1843).

Homoeostasis: The body's ability to maintain a stable internal balance of its various biological processes.

Hookworm disease: Serious tropical disease caused by parasitic worm, **Ancylostoma duodenale.**

Hormone: A chemical messenger that is carried around the body in minute quantities in the bloodstream.

Humerus: The bone extending from the shoulder to the elbow joint.

Hydrocephalus: Abnormal enlargement of the head, at birth, caused by an accumulation of cerebrospinal fluid in the brain cavities through a blockage of the normal circulation.

Hymen: A membrane, also called the maidenhead, at the entrance of the vagina in virgins.

Hypersensitivity: A condition in which a person reacts adversely to a substance which does not affect most people.

Hypertension: Abnormally high blood pressure. If the pressure rises persistently above normal a strain is thrown on the heart and the small blood vessels in the kidneys and the eyes are damaged.

Hypochondria: Morbid worry about health, often accompanied by a variety of symptoms that have no apparent physical cause.

Hypophysis: See PITUITARY GLAND.

Hypotension: Unusually low blood pressure. Hypotension does not necessarily indicate disease, as some people naturally have low blood pressure.

Hypothalamus: Small, grey and pink complex of nerve cells situated just below the centre of the brain.

Hypothermia: Lowering of the body temperature.

Hysterectomy: Surgical removal of the uterus (womb).

I

Iatrogenic disease: Disease caused by medical treatment for another disease.

Ileum: The lower part of the small intestine, about 3.5 m (12 ft) in length, that leads into the large intestine. Digestion of fats and carbohydrates is completed in the ileum.

Immunisation: The artifical stimulation of resistance to an infectious disease by introducing an appropriate substance, often a mild from of the disease, into your body.

Impetigo: Skin inection, mainly on the face and limbs, particularly common in children and babies.

Incubation period: The period between infection by disease germs and the appearance of symptoms.

Indigestion: Layman's term for almost any upset in the digestive system including abdominal discomfort, nausea, an acid taste in the mouth and abnormal belching.

Infarction: The death of an area of tissue after its blood supply has been cut off by the blockage of an artery, usually the result of an embolus, or blood clot.

Infertility: The inability of a man or woman to procreate.

Inflammation: The reaction of tissues to injury, irritation or infection.

Influenza: Acute infectious disease caused by a number of virus.

Injection: The introduction of a fluid into the body, normally as part of medical investigation or treatment.

Inoculation: Intentional introduction of germs into the body (usually by injection) to produce a mild form of an infectious disease and therefore subsequent immunity against it.

Insulin: Hormone manufactured by the islets of Langerhans, a group of cells in the PANCREAS.

Interferon: A protein substance, produced by the body's cells in response to virus invasion, that inhibits the multiplication of viruses.

Iris: The round, coloured part of the eye that surrounds the pupil,

J

Jaundice: Yellowing of the skin and whites of the eyes due to the presence of the colouring matter of bile in the blood.

Jaw: There are two jawbones. The upper one, the maxilla, is fixed and forms part of the skull, the lower bone, the mandible, is hinged to the maxilla by two identical hinge joints.

Jejunum: Middle section of the small INTESTINE.

Jet lag: Disturbance caused when the body's inbuilt 24-hour rhythm, known as the diurnal or circadian rhythm, gets out of phase with the natural rhythm of day and night.

K

Kala-azar: See Leishmaniasis.

Keloid: A tough, fibrous mass of scar tissue in the skin.

Keratin: A sulphur-containing protein that makes up the body's horny tissues, such as the fingernails and the surface layer of the hair and skin.

Kidney: The organ responsible for filtering waste products from the blood.

Knee: A hinge joint in the leg where the lower end of the FEMUR meets the top of TIBIA.

Kwashiorkor: A form of malnutrition caused by severe protein deficiency, which can occur in infants, usually after weaning.

Kyphosis: Curvature of the spine, producing a hump in the upper back — hence the name hunchback to describe the victim.

L

Lachrymal gland: The tear gland, situated above and to the outer side of the eye, which produces the fluid that bathes the eyeballs and eyelids.

Lacttation: Production of milk by mammary glands, or breasts.

Larynx: The voice box, situated at the root of the tongue and leading into the trachea, or windpipe.

Lead poisoning: Sources of lead poisoning, also known as plumbism, include leadbased paints, a number of industrial processes, and car fumes.

Legionnaire's disease: See Pneumonia.

Leishmaniasis: A disease caused by infection with protozoa, or parasitic micro-organisms, called **Leishmania** which are transmitted by sandflies.

Leprosy: A chronic bacterial disease of the skin, nerves, muscles and bone.

Lesion: A medical term describing an abnormality in tissue — for example, a wound, ulcer or tumour.

Leucocyte: A white blood cell. Its role is to attack and digest foreign particles, including bacteria, in the blood.

Leucotomy: A surgical operation on the brain, also known as prefrontal lobotomy, in which the white nerve fibres in the fontal lobe are cut.

Leukaemia: A serious malignant disease of the blood-forming organs which results in an abnormal increase in white blood cells, many of them at a primitive stage of development.

Ligament: A band of fibrous tissue connecting bones or cartilages.

Liver: The largest gland in the body situated in the upper right part of the abdomen.

Lockjaw: See Tetanus.

Long-sightedness: Inability to focus the eyes on near objects — for instance, words when reading.

Lumbago: Pain in the lumbar region, or lower part of the back.

Lung: The two lungs are spongy air-filled organs, supplied by the bronchi leading from the windpipe.

Lupus: A chronic, destructive skin condition, which has several forms.

Lymph: A transparent, yellowish fluid which arises in the tissues and travels in the lymphatic vessels.

Lymphocyte: A variety of LEUCOCYTE, or white blood cell.

M

Malaria: A parasitic disease that causes chills, fever and chronic ill health.

Malnutrition: Poor nourishment of the body caused by lack of an essential item in the diet, such as protein, fat, carbohydrate or a vitamin.

Mastoid: Term, meaning, breast-shaped, usually applied to the mastoic process, a nipple-shaped bony protuberance of the temporal bone behind the ear.

Measles: Contagious virus disease causing skin rash, fever, cold-like symptoms, and sometimes complications such as pneumonia.

Melanin: Naturally occurring dark pigment, colouring various parts of the body such as the hair, the iris of the eye, and the skin.

Membrane: Thin layer of tissue that covers body surface, divides a space or organ in the body, or lines a body cavity.

Meningitis: Inflammation of the meninges — the membranes that cover the brain and spinal cord.

Menopause: The change of life characteristic, when a woman's menstrual cycle becomes irregular and then stops altogether.

Menstruation: Normal periodic bleeding from the womb in women of child-bearing age.

Metabolism: The chemical processes occurring in the body in which complex organic compounds (food) are broken down (catabolism) with the release of energy — and simple compounds are built up into tissues (anabolism) using the previously released energy. Oxygen is an essential ingredient of metabolism.

Metacarpal: One of the five long bones of the hand, between the wrist and fingers.

Metastasis: The spread of disease from one part of the body to another.

Metatarsal: One of the five long bones in the foot, joining the toes to the heel bones.

Migraine: Recurrent headache, varying in duration, frequency and severity, and sometimes preceded by aura, or warning sings, such as blurred vision.

Mole: Pigmented spot in the skin. Moles are usually brown, sometimes raised, and occasionally have hair growing from them.

Mongolism: A congenital defect, also called Down's syndrome, in which a child is mentally retarded and has slanted eyes, a broad, short face, weak muscles and stubby fingers.

Moniliasis: Infection caused by a fungus. The yeast-like fungus (usually **Candida albicans**) is widespread.

Mononucleosis: Infectious disease, also known as glandular fever, thought to be caused by a virus.

Motion sickness: Nausea, and sometimes vomiting, caused by motion.

Mucus: Thick, slimy liquid that lubricates mucous membranes.

Multiple sclerosis: Disorder, usually occurring in young adults living in temperate climates, in which the linings of nerves in the brain and spinal cord are damaged.

Mumps: Acute contagious disease, usually affecting children, in which the salivary glands become inflamed and swollen.

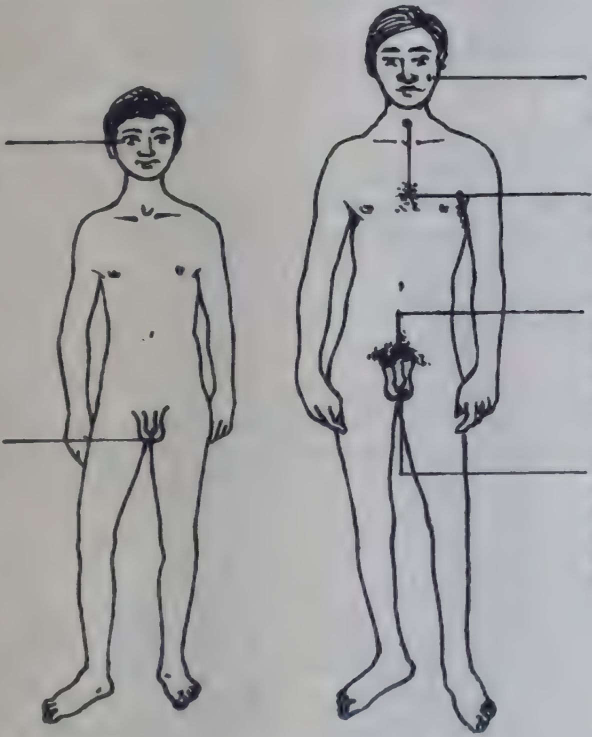
Muscle: Tissue responsible for movement in the body. The body contains about 650 muscles made up of three types: skeletal, visceral and cardiac (heart).

Muscular dystrophy: Wasting disease of the muscles — usually those controlling move-

HOW A BOY GROWS INTO AN ADULT

Adolescence is the time of life between puberty and maturity, when a child develops into an adult. On an average it extends from the ages of 10 to 14 in girls, and from 12 to 17 in boys, although the ages of onset and completion vary widely. The physical and emotional changes of adolescence are initiated by the release of hormones from the sex glands (testes and ovaries) into the bloodstream.

In addition to the above effects, the male hormone testosterone stimulates physical growth, and is thought to cause the aggression and daring of adolescent boys.



Pituitary gland: Stimulated by hormones from the hypothalamus, the pituitary secretes hormones which enlarge the testes.

Testes: These glands produce sperm, and secrete the male sex hormone testosterone. This brings the changes of adolescence.

Skin: This becomes oily, due to the activity of the sebaceous glands.

Voice: This first breaks and then deepens, as larynx and vocal cords enlarge.

Pubic hair: The beginning of the growth of pubic hair is accompanied by hair in armpits. Hair on face and chest follows later.

Reproductive organs: Penis and testes enlarge. The auxiliary sex glands (prostate and Cowper's) mature and secrete the seminal fluid in which sperm are carried.

How a girl grows: See page 169

ment — thought to be predominantly hereditary in origin.

Myasthenia gravis: Chronic disorder, usually of young people, in which nerve transmissions to the muscles are disrupted because of chemical disturbances.

Myxoedema: Disorder caused by insufficient secretion of the hormone, thyroxine by the Thyroid glands.

N

Nails: Horny plates on the upper surface of the finger and toe ends.

Narcolepsy: Abnormal inclination to fall asleep, usually due to brain damage in the Hypothalamus, the area near the front of the brain that controls the internal organs.

Narcotic: Drug that produces stupor, relieves pain, and ofter produces a feeling of well being.

Nausea: Feeling of sickness usually centred on the stomach.

Necrosis: The death of the cells, tissues, or a localised portion of an organ.

Nephritis: Inflammation of the Kidneys also known as Bright's disease which usually occurs after a streptococcal infection else where in the body.

Nerve: A bundle of specialised cells called neurons which transmit minute electro-chemical impulses between the brain and spinal cord, and other parts of the body.

Nervous system: The network of nerve cells that controls the body's responses to its environment and regulates its internal workings.

Neuralgia: Periodic attacks of severe pain that travel along a nerve.

Neuritis: Inflammation of a nerve or nerves, which may or may not produce pain (Neuralgia).

Nose: Organ of smell and one of the entrances to the respiratory system.

Nystagmus: Persistent involuntary movements of the eyes.

O

Obesity: Condition of being overweight due to excess accumulation of fat in the body.

Occupational disorder: Disease or disability occurring as a result of working conditions.

Oesophagus: The 24 cm (10 in) long muscular tube that carries food from the throat to the stomach.

Oestrogen: A term describing female sex hormones. Oestrogens, which are produced mainly in the ovaries, give a woman her female characteristics.

Osteomyelitis: Inflammation of the bone marrow, commoner in children than in adults, caused by infection with bacteria.

Osteopathy: A system of treating disease with massage and manipulation based on the theory that ill health is chiefly due to what is called 'structural derangement of bones'.

Ovary: The female sex gland, situated beside the womb.

Ovulation: Release of a mature Ovum (egg cell) from the ovary. Usually one ovum is released every 28 days, at about the midpoint of the menstrual cycle.

Ovum: The scientific term for the egg cell. Each ovum is a single female reproductive cell.

P

Pacemaker: A small mass of special nerve tissue in the heart which sets the rate of the heart beat.

Pain: Sensation which acts as a warning system about possible injury or illness.

Palate: The roof of the mouth, the hard part of which is formed by a bony partition separating the mouth and nasal cavities.

Palsy: Paralysis or constant shaking of a part of the body.

Pancreas: A 15 cm (6 in) long gland situated behind the stomach.

Pandemic: A disease, usually an infectious one, spread over several countries.

Paralysis: Loss or impairment of power or sensation in a part or parts of the body.

Parasympathetic nervous system: A division of the autonomic nervous system. It is responsible for returning the body to normal activity after an emergency.

Parathyroid gland: A hormone gland that controls the body's use of calcium and phosphorus.

Parkinsonism: Chronic disease that progressively affects the area of the brain controlling voluntary movement.

Patch test: A test in which a substance is injected into or placed in close contact with the skin to determine if a person is sensitive to it.

Pathogen: The scientific term for any micro-organism or substance that causes disease.

Pellagra: A nutritional disorder due to lack of the vitamin nicotinic acid, one of the B group, and to deficiency in protein.

Pelvis: The body structure linking the spine to the legs.

Penis: The male genital organ, made up of a cylindrical mass of spongy tissue encased in loosely fitting skin.

Peristalsis: A wave of contraction passing along a muscular tube such as the oesophagus, intestine or Fallopian tube.

Peritoneum: Membrane lining the abdominal cavity which covers the stomach, intestines and other abdominal organs.

Phagocyte: Any cell that engulfs (and usually digests) micro-organisms, other cells or foreign matter.

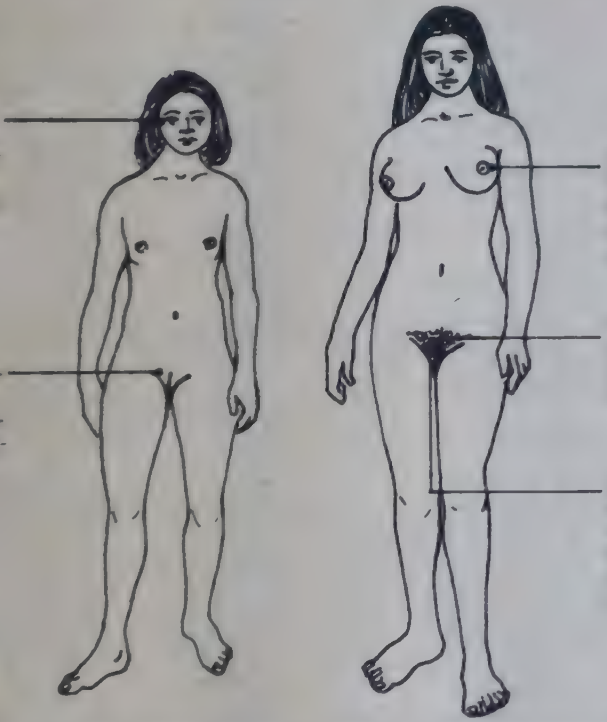
Pharynx: The cavity, about 11.5 cm (4½ in) long, between the back of the mouth and the nasal passage above, and the gullet and larynx below.

Phenylketonuria: An inherited disorder of the body's metabolism that can affect mental ability.

Phlebitis: Inflammation of vein, often accompanying thrombosis of the blood vessel.

Physiotherapy: Treatment of injury or disability with exercise, heat and massage.

HOW A GIRL GROWS INTO AN ADULT



Pituitary gland. Stimulated by hormones from the hypothalamus, the pituitary secretes hormones that bring about the maturation of the ovaries.

Ovaries: These glands produce ova (egg cells) and secrete the female sex hormones oestrogen and progesterone. These stimulate most of the changes of adolescence.

Breasts: Growth of the brests, accompanied by slight darkening of the nipples, signals the onset of puberty.

Pubic hair: Growth of pubic and axilliary (armpit) hair is stimulated by the adrenal hormone androgen.

Reproductive organs: The internal and external organs (uterus, vagina and labia) mature under the influence of oestrogen, and menstruation begins.

The balance between oestrogens from ovaries and androgens from adrenals determines the amount and distribution of body hair and the amount of fat around the breasts and hips.

Piles: See Haemorrhoids.

Pituitary gland: A small gland, also called the hypophysis, attached to the base of the brain.

Placebo: An inactive, non-harmful substance given to patients to satisfy their wish to be treated.

Plague: Any epidemic disease, though usually one that has a high death rate.

Plasma: The liquid constituent of blood that comprises 55% of its volume.

Plastic surgery: See Surgery.

Platelet: A minute, colourless cell in the blood that plays a major part in its clotting.

Pleura: A moist, double membrane that lines the inside of the chest cavity and the outside of each lung.

Pleurisy: Inflammation of the Pleura, often a complication of pneumonia.

Pneumoconiosis: The formation of fibrous tissues, (fibrosis) in the lungs caused by constant inhalation of dust.

Pneumonia: Acute inflammation of the lungs. Pneumonia may be caused by bacteria — usually pneumococci — or viruses.

Pneumothorax: The presence in the chest of air or gas between the pleura.

Poisoning: Some poisons are not necessarily harmful to the body in small amounts — alcohol, for example — but can havee an adverse, even fatal effect if too much is taken.

Poliomyelitis: An acute virus infection of the nervous system that often causes paralysis.

Polypus: A tumour growing from the membrane of various body structures such as the nose, bladder, womb, or intestine.

Presbyopia: Difficulty in focusing on near objects.

Priapism: Painful erection of the penis. If persistent it is usually the result of thrombosis within the erectile tissue of the penis.

Prolapse: Displacement of an organ from its normal position.

Prophylaxis: The use of medicine in preventing disease, rather than curing it.

Proprioception: The ability to sense how the body is moving and the positions of the parts of the body.

Prostaglandins: Naturally occurring substances in the body which affect the nervous system, blood flow in the kidneys and the action of a number of hormones.

Prostate gland: A gland in men which surrounds the bladder neck and the urethra.

Prosthesis: Artificial replacement for a part of the body.

Protein: A complex chemical compound present in every living cell.

Psoriasis: Generally mild but persistent skin disease that commonly fluctuates in severity.

Psychosomatic: A term used to describe disorders with both mental and physical features.

Puberty: The start of adolescence. It usually occurs at the age of 10 to 12 in girls and 12 to 14 in boys.

Puerperal fever: Once a common and often fatal complication in women after child-birth.

Pulse: The two-part impulse of the heart's contraction (systole) and relaxation (diastole) transmitted along the arteries.

Pupil: The hole in the centre of the iris which controls the amount of light entering the eye.

Pus: A thick yellow fluid made up of blood serum and the remains of bacteria phagocytes and damaged tissue, that forms when the body defends itself against bacterial invasion.

Pyloric stenosis: A blockage in the pylorus (the outlet of the stomach).

Q

Q fever: A mild, infectious rickettsial disease, so called because it was first identified in Queensland, Australia.

Quatriceps: The group of four muscles in the front of the thigh. When these contract the knee is straightened.

Quarantine: Isolation of a person with a communiable disease, or of a person who has been in contact with a communicable disease, to protect others against infection.

R

Rabies: An acute, usually fatal, infectious disease of the central nervous system caused by a virus.

Radiation sickness: The effects on the body of over-exposure to high-energy radiation, such as gamma rays, nuclear radiation or X-rays.

Radius: The shorter of the two bones in the forearm, situated on the same side as the thumb.

Rash: A transient eruption of the skin comprising a red area or areas, often with many small spots.

Raynaud's disease: An arterial disease affecting the feet and hands, in which the blood supply ceases temporarily, causing numbness followed by pain. The disease was first described by a Frenchman, Maurice Raynaud (1834-81).

Reflex: An automatic reaction of the body to a stimulus.

Reproduction: See Sexual Reproduction.

Respiration: Breathing, or external respiration, is the intake and expulsion of air to and from the lungs during which oxygen is taken up by the blood and carbon dioxide waste returned to the air.

Retina: The light-sensitive zone at the back of the eye.

Rhesus (Rh) factor: A complex substance present on the surface of red blood cells in most people. People with the Rh factor are described as Rh-positive and those without Rh-negative.

Rheumatic fever: A disease caused by toxin (poison) produced in the body by streptococcus bacteria.

Rheumatism: A term applied to disorders in which there is pain in the joints, bones and their supporting tissues.

Rheumatoid arthritis: See Arthritis.

Rhinitis: Inflammation and swelling of the mucous membrane in the nose, causing a running nose.

Rib: One of the curved bones that forms the framework of the chest and protects the organs in the chest cavity.

Rickets: A softening of the bones in children due to a lack of vitamin D in the diet and insufficient sunlight for the manufacture of the vitamin in the skin.

Rickettsial diseases: Illness caused by a group of bacteria-like micro-organisms, but of smaller size.

Ringworm: A highly contagious fungus infection of the skin, known medically as tinea.

Rosacea: A skin disease of unknown cause that affects the face.

Rubella: A contagious virus disease, also called German measles, that usually occurs in periodic epidemics.

Rupture: A hernia or break or tear in an organ or tissue.

S

St. Anthony's fire: A common name for an inflamed skin condition once thought to be Erysipelas, but now known to be a symptom of ergotism.
St. Vitus's dance: See Chorea.
Saliva: A mucous fluid secreted by the three pairs of salivary glands (parotid, in the cheek; sublingual, under the tongue; submandibular, below the jaw).
Salmonellosis: A variety of Food Poisoning caused by salmonella bacteria.
Sarcoma: A cancer, or malignant growth, in the body's connective tissue, such as muscle, cartilage or bone.
Scabies: A highly contagious skin disease caused by the itch mite **Sarcoptes scabiei.**
Scapula: The triangular flat bone at the back of the shoulder, commonly called the shoulder blade.
Scarlet fever: An infectious disease usually of childhood, characterised by a widespread, bright red rash accompanied by sore throat and fever.
Sciatica: Pain in the sciatic nerves, the two largest nerves in the body which run from the lower spine to the legs.
Scoliosis: Sideways curvature of the spine.
Scrotum: The pouch of skin that hangs below the base of the penis.
Scurvy: A deficiency disease caused by a lack of vitamin C (ascorbic acid) in the diet.
Semen: A thick white fluid discharged from the penis during an ejaculation.
Semicircular canals: The organs of balance, situated in the middle ear.
Senility: Loss of mental or physical capabilities that sometimes accompanies old age.
Septicaemia: A serious condition, also known as blood poisoning, in which bacteria or other germs multiply in the blood and spread throughout the body.
Serum: The clear yellowish fluid that remains in the blood after clotting occurs.
Sex Hormones: The hormones responsible for the development of secondary sexual characteristics in adolescence and for controlling sexual activity, including ovulation.
Sexual reproduction: The procreation of new individuals to ensure continuation of the species.
Shingles: See Herpes.
Shock: A collection of signs and symptoms known to doctors as the shock syndrome resulting from the failure or collapse of the circulatory system.
Short-sightedness: A defect of vision also known as myopia, in which an individual has difficulty in clearly focusing on distant objects.
Shoulder: The ball-and-socket joint between the humerus (upper arm bone) and the Scapula (shoulder blade).
Siamese twins: Identical twins who are born joined together, generally at the head, chest or hip.
Sinus: A hollow cavity, usually in bone. The term is generally taken to refer to the four paranasal sinuses in the skull — the frontal (forehead), maxillary (cheekbones), sphenoidal (back of the nose), and ethmoidal (below and behind the frontal sinuses.
Skeleton: The bony framework that supports the body and, with its many joints, provides the chasis to which the body's voluntary or skeletal muscles are attached.
Skin: The body's waterproof, impermeable protective covering, sometimes called the integument.
Skull: The bony framework of the head. The skull, or cranium, contains the brain and holds the organs of hearing, sight, smell and taste.
Sleep: A state in which the conscious mind ceases to function.
Sleeping sickness: A widespread disease of tropical Africa, caused by minute protozoan parasites called trypanosomes.

Slipped disc: The bones of the spine (vertebrae) are separated and cushioned by a ring of cartilage with a soft centre called an intervertebral disc — there are 23 altogether. Displacement of the intervetabral disc is called slipped disc and this may cause back ache.
Smallpox: Highly contagious virus disease, once a major cause of death throughout the world but now officially declared eliminated after worldwide vaccination programme by the World Health Organisation.
Smell and taste: The organs of smell and taste work together to detect the flavour of food.
Snoring: Noisy vibration of the soft plate, usually caused by a person sleeping with the mouth open.
Solar plexus: Term used to describe a large concentration (plexus) of nerve connections

in the upper abdomen that forms part of the sympathetic nervous system.

Spastic: Term describing a condition in which the muscles are stiff and movements awkward.

Spermatozoon: The scientific name for the male reproductive cell or sperm cell.

Sphincter: A circle of muscle fibres usually situated at the entrance or exit of an organ.

Spina bifida: A birth defect in which the bones of the spinal column fail to develop properly, so that the spinal cord — the main nerve of the body — is imperfectly protected.

Spinal cord: A soft, thick cord of nerve tissue about 45 cm (18 in) long, running from the brain through the seven cervical and 12 thoracic vertebrae to the first lumbar vertebra.

Spleen: A pulpy, blood-filled, oblong organ situated in the upper left part of the abdominal cavity.

Sprue: A chronic disease of the small inestine, in which fats and certain vitamins are not properly absorbed by the body.

Sputum: Matter, mainly composed of mucus, produced in the lungs and air passages.

Squint: See Strabismus.

Stenosis: Constriction of a passageway, duct, or opening in the body.

Sterility: In general terms the inaibility to produce children.

Steroid: A group name for a large number of naturally occurring substances with a similar chemical structure.

Stomach: An organ of digestion and a storage area for food, with a normal capacity of about 1.5 litres (2½ pints) in an adult.

Strabismus: A condition in which both eyes cannot focus on the same spot at the same time, commonly termed a squint.

Stroke: Damage to the brains as a result of blockage of an artery (thrombosis) or cerebral haemorrhage.

Stye: Inflammation of the eyelid caused by infection of one or more eyelash roots or of the sebaceous glands.

Sulphonamides: A group of drugs, which, when they were introduced in the 1930's provided the first effective treatment for a number of bacterial diseases.

Sunburn: Damage to the skin by over-exposure to the sun's radiation.

Sunstroke: A severe disturbance of the body's cooling system after over-exposure to the sun.

Suppository: A small cylinder of cocoa butter or glycerine made for insertion into the rectum or vagina.

Surgery: The treatment of disease, injury or deformity by operation or manipulation, usually using, some form of anaesthesia.

Sweat: The fluid secreted by the skin's sweat glands, sweat or perspiration is more than 99% water.

Sympathetic nervous system: Part of the autonomic nervous system, which controls involuntary movements of internal organs.

Syphilis: The most dangerous of the venereal diseases, caused by a spiral-shaped bacterium (spirochaete) called **Treponema pallidum.**

Systole: The rhythmic contraction of the heart which pumps blood into the circulatory system.

T

Tachycardia: Excessively rapid heart-beat - usually above 100 a minute, as compared with the normal 65.80 a minute.

Tapeworm: A parasitic worm that lives in the intestines of its host.

Teeth: Teeth grow from the maxilla and mandible (the upper and lower jawbones) and are supported by thickened parts of these bones called alveoli.

Temperature: The normal human body temperature is about 37°C (98.6°F) although for many people the normal is slightly higher or lower than this.

Tendon: Strong, elastic tissue that connects a muscle to a bone.

Testes: The two male sex glands (gonads) situated in the scrotum.

Tetanus: A serious infectious disease causing spasms of the voluntary muscles.

Tetany: Cramp or convulsions caused by a lack of calcium in the blood, which irritates nerve tissue.

Thalamus: A collection of nervous tissue consisting of two egg-shaped bodies lying deep in the brain between the two cerebral hemispheres.

Thorax: The chest, or thoracic cavity, containing the heart, lungs and oesophagus.

Thrombosis: The blockage of a blood vessel by a thrombus (blood clot).

Thrush: See moniliasis.

Thymus: An endocrine gland lying beneath the breastbone near the heart.

Thyroid gland: An endocrine gland lying on either side of the windpipe below the larynx.

Tibia: The shinbone, the main bone of the leg, between the knee and ankle joints.

Tic: A persistent twitching of muscles, usually those in the face.

Tinea: See Ringworm.

Tinnitus: Noises in the ear, often of a ringing nature.

Tissue: A group of cells of broadly similar type together with the material between the cells.

Tongue: The upper surface of the tongue has several thousand taste buds, made up of clusters of nerve endings which can detect four different tastes: sweet, sour, salt and bitter.

Tonsillitis: Inflammation of the tonsils. Tonsillitis is a symptom of several infectious diseases ranging from the sore throat of a cold to Diphtheria.

Tonsils: Two flat glands of lymphatic tissue at the back of the throat.

Toxaemia: The medical term for the presence of any poisonous material in the circulating blood.

Toxin: A poisonous substance produced in the body by bacteria, such as staphylococci or diphtheria.

Toxoid: A toxin which, having been treated to neutralise its dangerous effect, still retains the capacity to stimulate the body to produce antibodies (See antibody, antigen).

Trachea: The windpipe: a cartilaginous tube that extends about 23 cm (9 in) from the Larynx before dividing into the left and right bronchi.

Trachoma: An infectious disease of the eyes widespread in the tropics.

Transplant Surgery: The replacement of diseased or injured organs or tissues by healthy ones.

Trauma: An injury or wound. There are two types of trauma: physical, such as a bruise, cut or fracture; and emotional when shock may make a profund impression on the mind.

Trichinosis: A parasitic disease caused by a small roundworm, usually caught by eating uncooked pork.

Trichomonas Vaginalis: A protozoan parasite sometimes found in the vagina which may cause inflammation and discharge.

Tuberculosis: An infectious disease caused by the bacterium Mycobacterium tuberculosis.

Tumour: A swelling on or in the body. Some tumours are simply due to an accumulation of fluid. Other tumours are due to an abnormal growth of cells.

Typhoid fever: A serious, sometimes fatal, infectious disease caused by a variety of salmonella bacteria.

Typhus: A group of infectious diseases caused by Rickettsiae micro-organisms (see. Rickettsial Diseases).

U

Ulcer: An inflamed, open sore on the skin or on the mucous membrane lining a body cavity.

Ulna: The larger of the two bones in the forearm.

Ultrasonography: The location, identification and measurement of deep structures in the body by measuring the reflection or transmission of high frequency sound waves (ultrasound).

Umbilical cord: Structure which connects the foetus to the placenta in the mother's womb.

Uraemia: Poisoning of the blood resulting from the presence of waste products that are normally filtered off by the kidneys and excreted in the urine.

Ureter: One of the two muscular tubes that carry urine from the kidneys to the bladder.

Urethra: The tube through which urine leaves the bladder and is discharged from the body.

Urine: A yellowish liquid produced in the kidneys. Mainly composed of water, the urine also contains the body's waste products filtered from the blood by the kidneys.

Urogenital system: The reproductive and urinary systems.

V

Vaccination: The introduction of a vaccine into the body to produce immunity to an infectious disease, such as smallpox.

Vagina: Muscular passage, lined with mucous membrane, that extends 10-12 cm (4-5 in) from the vulva, or female external genital organs, to the cervix, or neck of the womb.

Varicose vein: Dilated and knotted blood vessel near the skin surface, usually occurring in the leg.

Vas Deferens: The tube along which spermatozoa travel from the testes to the urethra in the penis.

Vein: Blood vessel that returns blood to the heart from all areas of the body.

Vena Cava: The body's main vein, returning blood from all over the body to the right auricle of the heart.
Venereal disease: Disease transmitted by sexual contact.

Verruca: Medical term for a wart, a small growth formed on the skin and caused by a virus.
Vertebra: One of the 33 bones of the spine.
Vertigo: Severe dizziness, in which the sufferer may feel that he is being whirled about.
Virus disease: Disease caused by any of a great variety of very small, living particles.

Vitamins: A group of unrelated organic substances essential in minute quantities for the normal functioning of the body's chemical processes.
Vulva: The external female genital organ. It surrounds the opening of the vagina, which in virgins is usually partly covered by a thin membrane, the hymen.

W

Wart: See Verruca.
Whitlow: An inflammation, not usually serious, of the tissues round the base of a fingernail or toenail, known medically as paronychia.
Whooping cough: An acute, contagious infection of the upper respiratory passages and bronchial tubes.

Womb: Hollow, muscular, pear-shaped organ in the pelvis of a woman in which during pregnancy, the growing foetus is protected and nourished until birth.

X

Xerophthalmia: An eye disease caused by a lack of vitamin A in the diet.
X-rays: A type of radiation similar to radio waves or light rays, X-rays have very short wavelengths, can penetrate soft tissues and, though invisible, can register on photographic film.

Y

Yaws: Disease caused by spirochaete bacteria.
Yellow fever: A virus disease transmitted by forest-living mosquitoes in parts of Africa and South Ammerica.

BODY REPAIR IN 21st CENTURY

Like a repaired car, the human body of 2000 will be made up of replaceable parts. Heart, lungs, kidney, pancreas, blood vessels, ears and may be eyes will commonly be replaced.

It looks like an ordinary microchip, but it may have a life of its own. Someday it could end up inside somebody's brain.

Scientists from the U.S. National Institute of Mental Health are growing animal tissue on a silicon chip in the hope that the two eventually will connect and begin to interact. Sometime, probably well into the next century, microchips may be implanted in human brains, where they will link up with undamaged nerve cells and take over functions destroyed by injury or disease.

Other medical scientists are wrestling with an age-old question: Can human life be significantly prolonged?

Researchers on aging say that if cancer and heart ailments magically disappeared, the average life span would increase by only a few years. These scientists are trying to retard the aging process itself, extending the years of robust health toward 100.

One theory is that aging is caused by the buildup of metabolism's toxic byproducts and could be slowed by boosting the body's protective enzymes.

A formula for extended youth may never be found. But by 2000, many of the human body's remaining secrets will have been unlocked. New discoveries are occurring almost daily, especially in molecular biology — the study of the body's functions at the basic genetic level. The advances will make today's medicine look primitive.

Technology, some of it extremely costly to operate, will produce unprecedented tools for diagnosing and treating disease. New body scanners, especially the magnetic resonance imager, will produce photograph-like pictures that reveal far more than today's CAT scanners without using radiation.

Tiny pumps implanted in the body will take over from ailing organs, for example, shooting out insulin for a malfunctioning pancreas. Lasers will take over most work now done by scalpels, perhaps even making coronary bypass surgery obsolete.

Robots will work alongside some surgeons "For certain functions, robots will be more accurate than people, and they'll take care of repetitive tasks too, such as suction and retraction," says Dr. Donlin Long, chairman of neurosurgery at the John Hopkins University Medical School.

Teleradiology will convert future accident victims' X-rays to digits and send them by telephone to specialists for instant analysis. Doctors will turn to computer terminals, not musty reference books, for guidance on symptoms, treatments and prescriptions. One futurist predicts that within 50 years, many doctors will be replaced by technicians operating well-programmed computers.

Meanwhile, health specialists say, more physicians will cease being repairmen. By 2000, people may spend as much time and money on prevention of illness as on treatment, and look to changes in lifestyle, not technology, for their well-being.

"We have it within ourselves to control our cardiac destiny," says Dr. Robert I. Levy of Columbia University. He believes that education about smoking and diet, especially cholesterol, will help bring heart disease down.

A new generation of drugs will aim at preventing and curing disease rather than treating symptoms. Made more by biologists and computer scientists than chemists, these drugs will be cloned from the body's own genes, hormones, and enzymes and will mimic nature to cure ills. The next century also will see a new wave of vaccines to prevent such illnesses as chickenpox, malaria and hepatitis — and even tooth decay.

Viruses, which cause a range of illness including the common cold, herpes, and AIDS, will remain a challenge.

Areas of medical research with great significance for the future include the brain, the mind, genetics, early warning of predisposition to certain diseases, cancer and artificial organs.

"As heart disease and cancer become more treatable, the major health problem over the next 50 years will be degenerative diseases of the brain," says Dr. Richard Jed Wyatt, chief of neuropsychiatry at the National Institute of Mental Health. Some experts expect cases of Alzheimer's disease, a type of dementia, to triple in the next 75 years as the population ages.

But an explosion of research on the brain, one of the last frontiers of medical science, will offer eventual cures for some of today's most feared disorders. For example, a recent discovery that the brain has at least 50 and perhaps hundreds of neurotransmitters — chemicals that direct much of its function — probably will lead to new treatments or cures for Parkinson's disease, epilepsy, schizophrenia, chronic pain, and even Alzheimer's disease.

The workings of the mind, once thought intangible and invisible, will be traced with new scanners. "We're in the process of demystifying the brain. By the year 2000 we may know exactly what is happening, say, in my brain while I'm talking to you", says Dr. Katherine Bick, deputy director of the National Institute of Neurological and Communicative Disorders and Stroke.

Future drugs will literally refresh our memories. "Using certain drugs, we now can make animals remember better, and I believe that before long, we'll help humans with memory problems," forecasts Dr. James L. McGaugh, director of the Centre for the Neurobiology of Learning at the University of California, Irvine. Several U.S. drug manufacturers already are researching these "cognitive enhancers."

One of the most ambitious areas of brain research is an effort to make a damaged brain "whole" through special surgery.

Wyatt has found that rats suffering symptoms of Parkinson's disease — a deficiency of a neurotransmitter — can recover if affected brain tissue is surgically replaced by new cells. If the process works in rhesus monkeys, Wyatt believes, it eventually should work in humans.

Gene by gene, scientists are mapping the human body. The number of identified genes is roughly doubling every two years, and although the rate will slow many of the significant ones will have been located by the turn of the century. Last year, for example, scientists found the gene that corresponds to the fatal Huntington's disease.

About 3,500 illnesses, including many forms of mental retardation, have been linked to genetic defects, and future scientists for the first time may be able to treat them. Beyond that, genetic mapping will help explain a broad range of biological functions, such as the process that causes chromosomes to rearrange themselves and trigger cancer, says one of the mappers, Dr. Frank Ruddle of Yale Univesity.

Although ethical questions loom, the new knowledge should yield advances for future health care, among them genetic vaccines and drugs, prenatal screening, and early warnings of predisposition to certain adult diseases, even those caused by a combination of hereditary traits.

"Now, for instance, we have to tell the whole population to cut down on fats," says Dr. Arno G. Motulsky, director of the Centre for Inherited Diseases at the University of Washington, Seattle. "When we can detect genetic predisposition in heart disease, we'll be able to target those people at risk, and the rest may be able to eat as much fat as they want."

If current animal studies succeed, 21st-century doctors may practise "gene therapy," inserting normal genes to correct mistakes in patients' genetic makeup. In the next year or two, the first trial of human gene therapy will be conducted on ADA deficiency, a life-threatening enzyme shortage.

"If gene therapy works with ADA, any hereditary disease could theoretically be treated with gene therapy," says Dr. W. French Anderson, chief of the National Heart, Lung, and Blood Institute's molecular hematology laboratory.

Eventually the treatment could be simple: "A visiting nurse could cure sickle-cell anemia in a population with injections into the bloodstream", Anderson says. Like tuberculosis and polio, most genetic disorders could be virtually banished.

Ethical concerns envelop gene therapy, especially the question of using it to change future offspring and "enhancement gene engineering" — insertion of a gene to improve a trait such as intelligence. But such tampering is unlikely, even in the distant future.

This complex disease of cancer will continue to kill and cripple us in the next century, but it will be more curable. The U.S. National Cancer Institute foresees that if current research strategies succeed, cure rates should rise to an average of 75 per cent by the year 2000, up from about 50 per cent today.

Research is progressing in dozens of directions. Scientists now know that some cancers are triggered by oncogenes, normal genes that turn malignant. They're starting to attack cancer with cells called monoclonal antibodies; these single-purpose molecules, armed with radioactive isotopes or drugs, can seek out and destroy a tumor.

Other pioneer treatments seek to exploit the body's natural defences against malignancies. Research on immune substances known as tumor necrosis factor, which destroys cancerous cells while leaving normal cells intact, may lead to radical new approaches to cancer therapy.

Combinations of surgery, radiation, and chemotherapy, commonly used today, will continue to be staples of future cancer treatment, the specialists say, but they will be more refined and humane.

"One of the main advances over the next 15 years will be a better way to determine who will respond to chemotherapy and who won't," predicts Dr. Bruce A. Chabner of the National Cancer Institute.

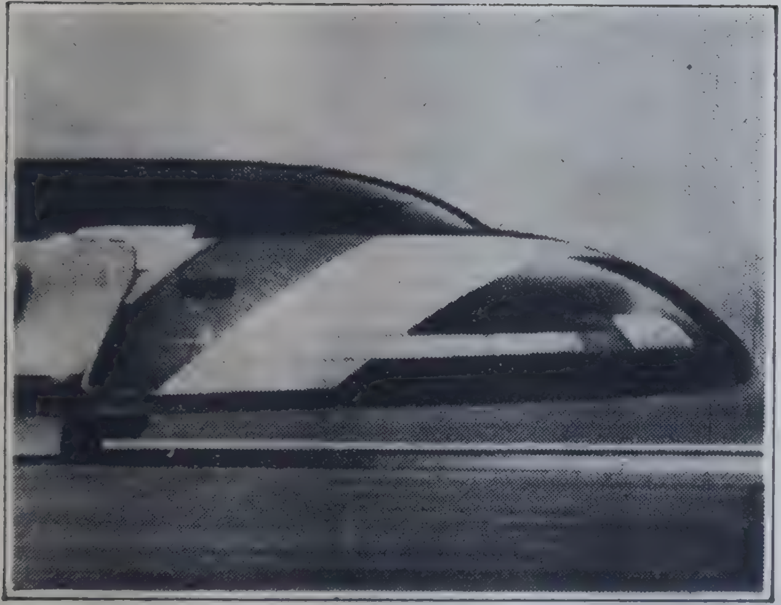
By 2000, some cancers, especially breast and ovarian should be highly curable, but lung cancer will remain a major killer. And the AIDS virus, which can lead to malignancies, is a worrisome question mark in future cancer rates, Chabner says.

Like a repaired — car, the human body of 2000 will be made up of replaceable parts. "There is no organ which won't be replaced in the future." says Dr. Pierre Galletti, who has developed artificial organs at Brown University.

Parts that will commonly be replaced in the future include heart, lungs, kidney, pancreas, blood vessels, ears, and maybe eyes. Eventually, Galletti says, man-made parts will replace the liver and even sections of the brain and nervous system.

Tomorrow's artificial organs will be made of more sophisticated materials than today's. "Bioartificial organs," hybrid of natural transplants and artificial parts, may help stop tissue rejection by encapsulating donor material in plastic.

—*NATIONAL GEOGRAPHIC*



SPECIAL FEATURE

SUPER CONDUCTIVITY: WHO WILL PULL THE MAGIC WIRE FIRST?

Conductors have eaten up roughly 50 per cent of all the power produced all over the world so far. This is sheer waste. Scientists and engineers have always wondered whether carriers of electric current could not be made superconductive so that this waste is avoided. Recent discoveries indicate this is indeed possible. Frantic efforts are afoot to pull the magic wire first.

Once realised this will mean a technological revolution with a potential impact as great as the industrial revolution or probably even greater. Besides saving phenomenal amounts of electric energy, superconductivity opens up amazing possibilities like bullet trains that move at several hundreds of kilometres per hour on cushions of magnetism, high-power small-size electric cars, computers miniaturised many times more despite being many times more powerful, nuclear reactors safer and yielding many times more energy (from nuclear fusion) and diagnostic aids of extra-dimensions though dirt-cheap.

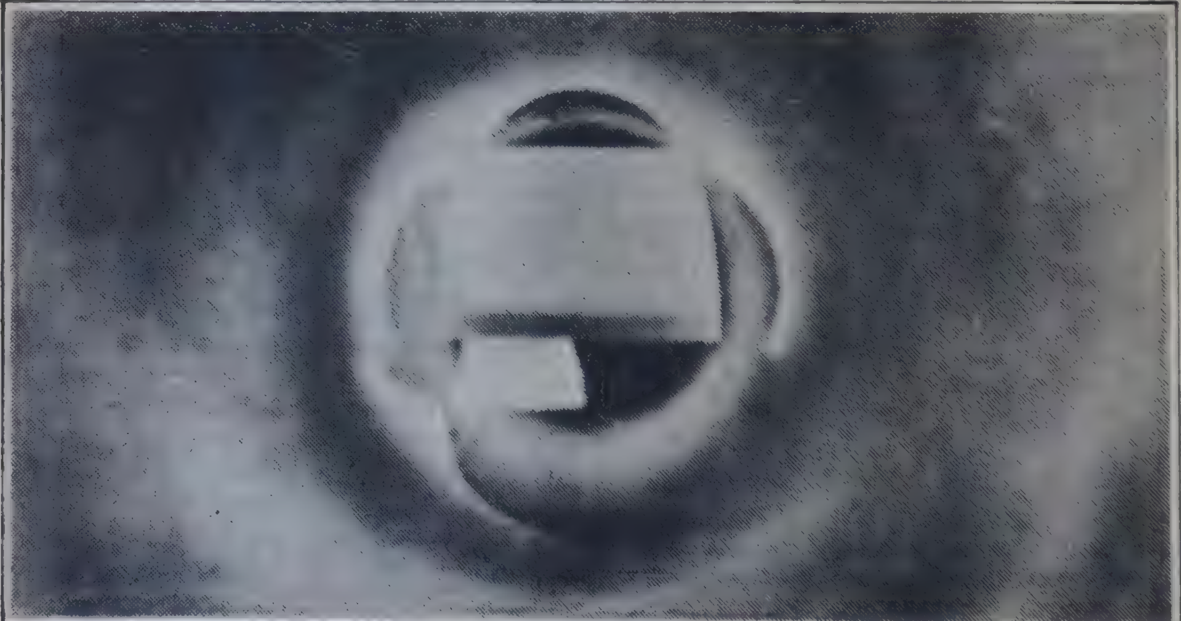
In short, this is a whole new world opening up. Superconductivity has therefore become a magic word overnight. The entire world has woken up to it with a jerk. Suddenly, everything is at stake. If one does not get in front, all leads in technology achieved so far are gone with the wind. So, research in the field has become a mad scramble, different from the usual pattern of an orderly race. Not without sufficient reason, however. One who gets there first will win the key to change the world and shape the future of mankind.

India, significantly, has been so far on the frontline in this close race. The whole world is watching breathless. Will a developing nation have the stamina to keep the lead to the ribbon? Will the usual winners overtake? What are the odds in real terms? How far are one's tips reliable? In India there are various centres and groups working in the area. The Indian Institute of Technology, Madras, the Indian Institute of Science, Bangalore, Bhabha Atomic Research Centre, Bombay, and the National Physical Laboratory, Delhi, have now been joined by many a laboratory of the Council of Scientific and Industrial Research (CSIR) and some university centres.

The Prime Minister has set up an apex body under his chairmanship to co-ordinate and promote the work on top priority basis. On the body are all the ministers concerned, secretaries of science and technology departments, chaiman of the University Grants Commission and members of the Science Advisory Council to the Prime Minister. According to Dr. Vasant Cowariker, Science and Technology Department secretary, the setting up of a body like this underlines the "political commitment to this emerging area of science and technology".

Also formed by the Prime Minister is a Programme Management Body headed by Prof. C. N. R. Rao, chairman of the Science Advisory Council to him. The PMB has executive and financial powers to pursue the programme to its well-defined fruition. Apart from the Finance Secretary, the PMB includes eminent scientists, technologists and heads of scientific agencies in various parts of the country. Moreover, India's eminent physicist Dr. M. G. K. Menon has been given the responsibility of co-ordination. He has the unenviable job of avoiding duplication, back-biting, inter-group information black-out and functional bottlenecks besides providing incentives and a healthy atmosphere.

Developed nations are pushing research in this area at a feverish pace. What is all the fuss about in real terms, one may ask. What is it all



A conductor with a difference: A yttriumbarium-copper oxide being backed to superconduct at 107K.

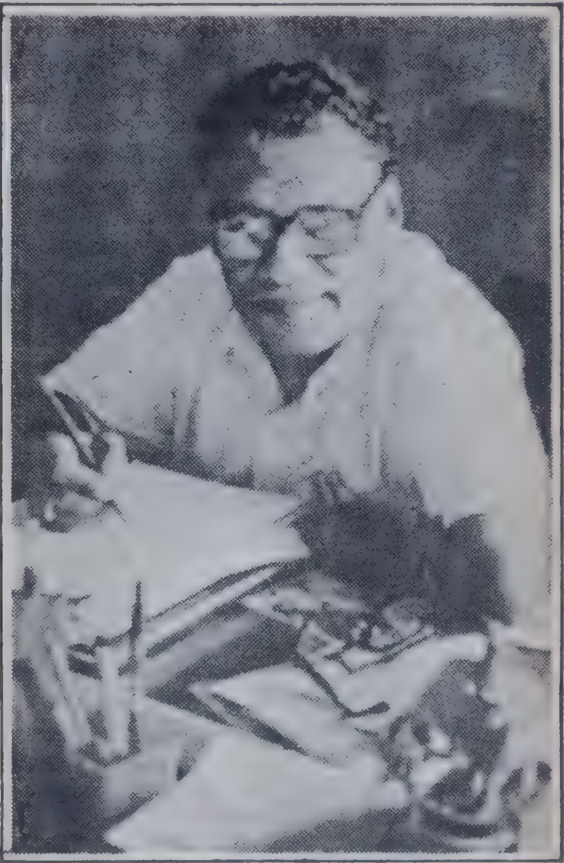
about? Very simple, in fact, for superconductivity is what the very word means: electrical conduction without any resistance on the part of the wire carrying the current. What is put in at one and is obtained in full at the other without an iota of line-loss.

The crucial question is what makes the current-carriers of today resistant. Temperature has been known to be one factor contributing to carrier-resistance. The only way to make today's carriers of electricity superconductive is to lower their temperature to the rock bottom of what is known as Absolute Zero or zero degree Kelvin which is minus 273°C.

Conductors cooled to this frigid limit lose all resistance to the flow of current through them. But maintaining the lowest temperature on Earth is very expensive and difficult. This was why superconductivity remained a mere curiosity in research labs though it was discovered way back, at the beginning of this century.

Transition temperature for superconductivity.

Element	Tc (K)
Al	1.196
Cd	0.56
Ga	1.091
Hf	0.09
Hg	4.15
In	3.40
Ir	0.14
La	4.9
Mo	0.92
Nb	9.26
Os	0.655
Pa	1.4
Pb	7.19
Re	1.698
Ru	0.49
Sn	3.72
Ta	4.48
Tc	7.77
Th	1.368
Ti	0.39
Tl	2.39
U	0.68
V	5.30
W	0.012
Zn	0.875
Zr	0.65



Prof. C. N. R. Rao: Leading Indian Researcher

It was Heike Kamerlingh Onnes, a Dutch physicist, who discovered superconductivity. The year was 1911. He was studying the variation of the electrical resistance of mercury with temperature. At temperatures within a few degrees of absolute zero, the resistance dropped sharply to an unmeasurably small value. This transition to superconductivity, however, was found to involve more than simply very high or infinite electrical conductivity. In 1933, W. Meissner and R. Ochsenfeld discovered that a superconductor placed in a not-too large magnetic field expelled the field from the interior of the conductor. Thus, further possibilities were thrown open.

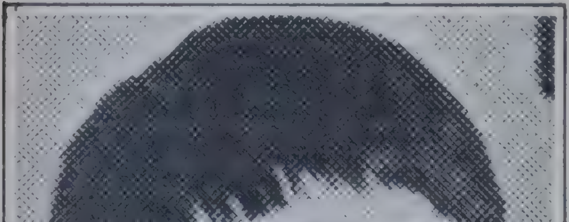
But superconductivity could be established only at the low temperature of 4.2 K. This is the point at which helium gas liquefies. Superconducting devices had to be immersed in liquid helium in tightly sealed and heavily insulated containers. The cost was prohibitive. This limited the use of this technology to a few devices — a Japanese prototype of a magnetically levitated train, some particle accelerators, a few magnetic resonance imaging machines and costly magnetic 'bottles' in fusion research centres.

It was in this context that the floodgates opened during the past year. Researchers stumbled upon an unusual class of chemical compounds. These too had to be cooled to become superconductive but only to temperatures in the vicinity of 100 K. Liquid helium could now be replaced by liquid nitrogen which is cheaper. These new substances were found to be capable of generating intense magnetic fields too.

The materials originally known to be superconductive at low temperatures (lead, tin, mercury etc.) were known to lose this capability as soon as enough current was flowing through them to generate significant magnetic fields but the ceramics, the alloys of oxides of niobium and titanium, kept their superconductivity despite strong magnetic fields.

But do what they may, till 1973, scientists could not raise the superconducting temperature beyond 23 K. It was Karl Alex Muller of IBM's Zurich laboratory who decided to try metallic oxides known as ceramics. Ceramics are very poor conductors at room temperatures making them fit for use as electrical insulators. Muller raised the transition temperature to 35 K. But the world of physics laughed at him, though not everybody. The Japanese and the Chinese took him very seriously.

They repeated his experiments and the temperature rose to 38 K. Paul C. W. Chu of Houston University, who has been studying superconducting materials since 1955, took up the challenge. He pressurised a superconducting material and found that the transition temperature could be raised to 52 K. But he found that was the limit. At pressures greater than 10 to 12 thousand times normal atmospheric pressure, the molecular structure of the superconducting material got damaged. More pressure did no good.



Paul Chu: a Pioneer in the field.

Cleverly, Chu replaced the barium in the sample with strontium which is smaller in atomic structure. This was to reduce the size of the compound's molecules from within. The transition temperature could be upped by two more degrees. But when he tried calcium, an element with still smaller atoms, the transition temperature dropped. Chu then tried lanthanum. And one of Chu's graduate students, Maw-Kuen Wu, replaced lanthanum with another rare earth element, yttrium.

Rare earths are not really very rare. For example, yttrium is more abundant than lead. The word rare, in this case, is a misnomer. India and China are two countries having the world's largest rare earth deposits. Wu and Chu thus raised the temperature to 93 K first and to 98 K a few days later.

It was at this stage that Indian scientists first reproduced the Houston results and then reported improvements. Many other variations of the compound used by Chu and Wu were tried out. And this is still going on.

Japan has quickly recognised the commercial potential of the breakthrough. Its ministry of international trade and industry plans to subsidise private sector research. Companies in Japan have already made considerable progress in superconductors.

In America too, annual government funding for superconductivity research has been doubled and a computer data bank is being created to serve as up-to-date research reference for scientists in the field. Also, a bill is on its way to form a national commission to coordinate research and development in this area.

Reliable superconductivity at room temperature is expected to be achieved any minute now. When this happens, it will be a major event of the century, like the discovery of transistors during the 1950s. And scientists at the National Physical Laboratory claim to have achieved room temperature superconductivity under laboratory conditions.

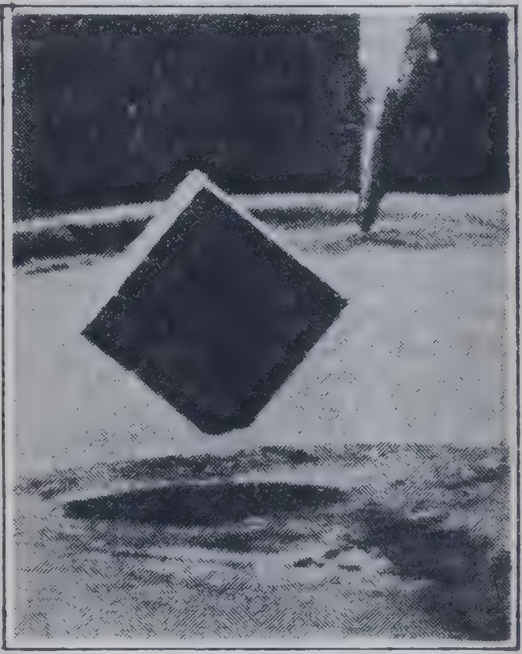
The many splendoured genie

The recent hotting up of the superconductivity race has filled the air with speculations about its applications. Transformation of present-day technologies is only part of the future that is envisioned. Some are dreaming of an entirely new kind of world, once superconductivity becomes an everyday reality. And Indians are no exception.

For countries like India especially, which are yet to enter the high-tech phase, the new technology will mean a bonanza. India, for instance, has no major capital investment existing in areas like thermonuclear research, particle accelerators, MRI machines, superfast transport systems, installed supercomputer capacity, high capacity power stations and power storage systems. Many parts of the country are yet to be covered by electrification. Therefore, culturing of the new superconductor technology will not be deterred by what is known as the "sunk-capital drag". Developed nations, on the other hand, are affected by this drag as they have mountains of funds already invested on existing technologies.

If India wins the race in good time, there is a whole world to be won. Indications are that superconducting technology is of low cost both in terms of research and application. The most important raw material will be the rare earths which India possesses in enviable measure, sufficient to last from now to eternity.

A lot can be earned — and not only in terms of money — from saving of energy and use of non-polluting alternative sources of power. If all the wastage suffered in transmission of electrical power is done away with, it would amount to doubling of existing power production capacity. If electricity could be sent through superconducting cables not an iota of power would be lost and the needs of an entire city could be met through a handful of underground cables.



A magnet levitating

India is on the brink of the computer era. With the coming of superconductivity, all of today's computers will go obsolete. This is because the current passing through the circuits of any computer today, however small, produces heat and this limits the proximity of circuits to each other and therefore the size of the computer. Today's computers, however small, cannot operate without air vents or internal fans to dissipate internal heat. Further miniaturisation will mean greater freedom from trouble and better functional capabilities.

In the field of electronics there will be breath-taking developments. Circuits not viable so far due to heating problems, switching gear needing liquid helium temperatures, high resolution radars, transmitters limited in strength by heating problems — many such applications will be revolutionised by superconductivity. It will be in fact a totally new brand of electronics.

The method of research is almost akin to that of the alchemists of old. Ceramics of various kinds are being tried in various combinations. Trial-and-error is the method. In India too all the groups are adopting more or less the same method. This resembles a blind man feeling his way around. Why so, one may ask. Is it not possible to mix the right stuff in right measure and achieve the desired results?

Unfortunately, scientists are not very certain what exactly is the physical cause of superconductivity. Of course, there is a theory that explains the how and why of it. It is known as the BCS theory. BCS because it was discovered by A. J. Bardeen, Leon Cupper and Robert Schrieffer who shared the 1972 Nobel Prize for physics for this theory. But the theory does not explain superconductivity at higher temperatures.

Atoms are known to have a tiny nucleus consisting of positively charged protons and chargeless neutrons. Negatively charged electrons in concentric shells whirl round the nucleus. Every electron shell has a fixed number of permissible occupancy. No shell can contain more than its permitted number but any shell can have less than its full quota.

In good conductors of electricity in general, the outer shell has a number of slots empty, making the electrons in that shell not bound very tight compared to their counterparts in the inner shells. When electric current moves, loose electrons go on filling in and getting out of the empty slots. Atoms of insulators, say, like rubber, have their outer shells completely filled.

Prof. Subba Rao: Quietly efficient

Even in a good conductor, when electrons move from atom to atom as a part of the flow of current, the electrons collide with one another, thus losing part of their energy in the form of heat. In superconductivity, these collisions are avoided, says the BCS theory. A free way is made available for the movement of electrons.

"You can think of it as electrons condensing into new states," says Bardeen, "a state involving the pairing of electrons and a kind of ground discipline". Bardeen says his theory can explain superconductivity only up to 40 K. But at 90 K, he admits, "we are going to need a new mechanism", Schrieffer, co-author of the BCS, says "superconductivity may turn out to have as many causes as the common cold."

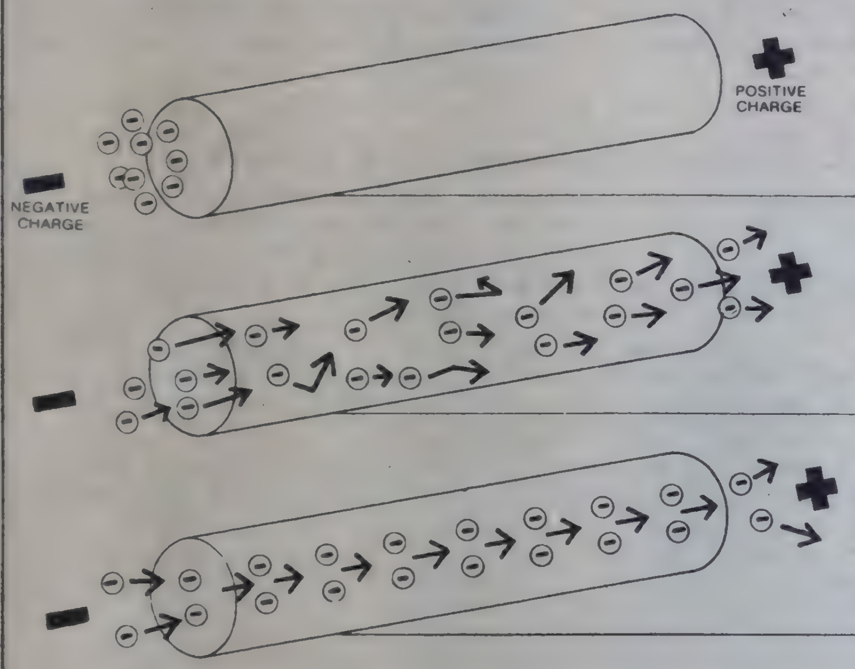
Fundamentalists among superconductivity researchers are studying why the ceramics lose their electrical resistance. They are frantically shooting high magnification (electron microscope) pictures of materials to find out defects, if any, in the structure of molecules. Others are using pulsed beams of neutrons, ultrasonic beams and X-rays.

The west is intrigued by the report that the temperature record set by Chu and Wu is being matched and even surpassed by researchers in India and Japan. The latest report is as high as 240 K which is warmer than the Siberian winter. This means that somebody is on the brink of ultimate success. In the past year, the transition temperature has increased by a factor of four. If it increases by the same factor in the same period again, we will have room temperature superconductivity in less than one year from now.

But there is many a hurdle yet to be cleared. One is the technology of usable shapes of the superconducting materials, worse still, if these materials are ceramic. How brittle materials of ceramic is no secret for anyone who has dropped a rice bowl.

Flexibility is the password as the stuff will have to be wound around and stretched. Already scientists in America and Japan have reported some success in forming ribbons and

RESISTANCE AND FLOW OF CURRENT



INSULATING MATERIAL

Electrons are tightly packed in materials like rubber and glass. The electrons cannot be pushed around when voltage is applied. Therefore there is no flow of current.

NORMAL CONDUCTOR

In good conductors electrons are loosely packed. But they collide when voltage is applied and hence flow of current is not smooth. Energy is lost when the electrons collide.

SUPERCONDUCTOR

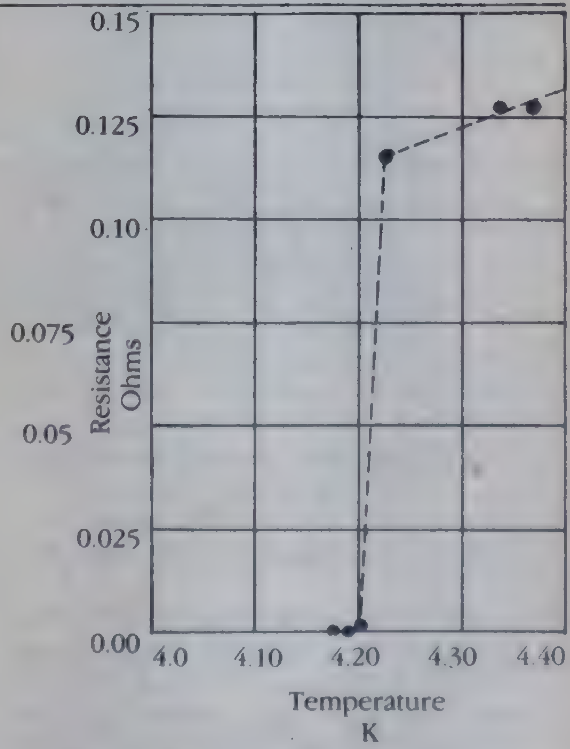
In a superconductor electrons are bound in pairs. When voltage is applied these electrons move one after the other avoiding collissions. Thus there is no energy loss

thin wires from ceramic and even creating the necessary shapes by spray-painting. Rings and flexible tapes made of high temperature superconductors have also been developed as samples.

Though the ceramic samples remain superconductors at high temperatures and can withstand intense magnetic fields, they have, as yet, only about a hundredth of the current capacity of conventional superconductors. The current flowing through the conductor determines the stength of the magnetic field around it. What is in demand are high power magnets. High current is found to be contradictory with high transition temperatures. Nature seems to say that one can't eat the cake and have it too!

Most high transition temperatures recently reported pertain only to momentary superconductivity. The materials remain superconductive only for a very limited 'temperature window' and that too for a very restricted amount of current. For practical purposes, the temperature window has to be tolerably wide and the current-carrying capacity infinite. Anything short of this will have no more than curiosity value.

Many renowned scientists today have be-



Resistance in ohms of a specimen of mercury versus absolute temperature. (Kamerlingh Onnes, H.)

come chefs of a new kind. Their labs look like huge kitchens. They are constantly grinding, mixing, heating, boiling, evaporating, cooling and cooking strange recipes with the hope that the right formula will surface by a miracle of chance.

Everybody is excited. In fact, too excited and too secretive to help one another. They are afraid that there will be misappropriation of credit due to them. It is almost a free-for-all. It is hoped that this feverish activity will produce the miracle. ☐

Nobel Prize Winning Research

Congratulating each other: Bednorz and Muller

The story of Karl Alex Muller, 60, and his colleague Johannes Georg Bednorz, 37, who jointly won the Nobel Prize for Physics in 1987, is the story of relentless pursuit in the field of superconductivity since 1983.

Dr. Muller, a physicist at the IBM Zurich Research Laboratory in Switzerland and Dr. Bednorz decided to pursue an approach to superconductivity that had met with limited success in the past. Instead of using the kind of metallic alloys that held the existing record, they turned their attention to the metallic oxides (compounds of metals and oxygen) known as ceramics.

Some theorists had suggested ceramics as potential superconductors despite the fact that they were poor conductors at room temperatures. In fact, ceramics are often used as insulators, for example, on high-voltage electric transmission lines.

Muller and Bednorz, tinkered with hundreds of different oxide compounds over the next few years, varying quantities and ingredients like alchemists in search of the philosopher's stone.

Finally, in December 1985, they came across a compound of barium, lanthanum, copper and oxygen that seemed promising. When Bednorz tested the compound, he was startled to see signs of superconductivity at an unprecedented 35K, by far the highest temperature at which anyone had observed the phenomenon.

Royal Swedish Academy of Sciences in their announcement about the Nobel Prize cited the important breakthrough achieved by Dr. Muller and Dr. Bednorz in the discovery of superconductivity in ceramic materials. Their work could eventually help shape ultra-powerful and ultrafast computers among other possible applications, the Academy said.

Part Two
WORLD PANORAMA

Asia Booms With Yen Up: World Economy On The Swing

WORLD UPDATE

With the upsurge in the value of Yen, Asia's four newly industrialising countries — Hong Kong, Singapore, South Korea and Taiwan are nabbing the world market — share very quickly.

THE surge in the value of the Japanese yen is changing Asia, altering long-time alliances and bringing new prosperity from Taiwan to Thailand.

Two years ago, as American officials plotted to lower the value of the U.S. dollar and raise the value of the yen, their main goal was to reduce the enormous U.S. trade deficit. That has not happened so far, but within Asia the consequences have already been immense.

"The effects of the yen's appreciation are being felt in every economy in the region'" said Mr. T.C. Thompson, chief economist of Wardley Investment Services in Hong Kong.

"Manufacturing industries throughout Asia are selling both to Japan and to Japan's traditional export markets abroad."

Some industries, such as ship-building, aluminium production and manufacture of small electronic goods, are leaving Japan, perhaps for good.

The electronics giant Sony Corp., for example, said that it was considering moving 25 per cent of its production capacity out of Japan to address the financial problems posed by the rising yen. And in the first quarter of last year South Korea for the first time surpassed Japan in orders to build new ships.

A number of Asian nations are scrambling to snatch industries from Japan and attract its investment capital. The race is on to becoming the next Japan.

"Looking at the past 30 or 40 years, Japan took over the U.S. function in the world economy: manufacturing," said Mr Arthur A. Odake, chairman of the Mitsubishi Corpn's Hong Kong subsidiary. "Now it is Japan's turn to give up this role, with Korea and Taiwan taking over our function."

The yen has appreciated about 80 per cent against the dollar since its trough on February 22, 1985.

That means that a Japanese colour television set with an average export price of about 40,000 yen would have cost $ 152 at the yen's low point. Assuming manufacturers passed on the entire increase to consumers, at today's exchange rate of about 143 yen to the dollar, the same television would be about $280, or twice the average export price of a Korean colour TV, ($140).

The results of the yen's rise are manifold:

By far the biggest beneficiaries have been Asia's four newly industrialising countries — Hong Kong, Singapore, South Korea and Taiwan. Even before the yen's surge, their wage rates were lower and they were steadily increasing exports and technical skills. But it was the yen's rise that gave these countries the opportunity to nab the market-share so quickly.

The four nations are enjoying a boom in exports because many of their products are similar to Japan's but are relatively cheaper because of exchange rates. The result has been an extremely rapid economic growth averaging more than nine per cent last year, up from a bit more than two per cent growth in 1985, when the yen hit its low point.

A flood of Japanese capital is being spent on property and factories abroad, as Japanese companies look for cheaper places to locate manufacturing. Japan's direct investment overseas in the last quarter of 1986 exceeded the figure for all of 1985.

After long complaining — as bitterly as U.S. exporters — that Japan was effectively a closed market, most Asian countries are finding that they finally can sell in Japan, as their goods drop in price compared with Japanese products. Hong Kong's exports to Japan, for example, soared 74 per cent in the second quarter of last year over the previous year's levels.

As it seeks cheaper alternatives to Japanese suppliers, China is doing a booming business with Taiwan and South Korea, even though it has diplomatic relations with neither.

Although manufacturing has increased in many Asian countries, it is most pronounced in the four newly industrialised countries.

Last year they together produced more colour television-sets than Japan, and this year Korea is shipping more television sets to the United States than Japan. Likewise, Korean production of video casette recorders has surged from 1.4 million units in 1985 to around 6 million this year, most destined for the United States.

The figures are similar for other products such as microwave ovens and semi-conductors.

These waves of exports are the main reason for the phenomenal economic growth that the countries are enjoying.

In the first half of last year, for instance, South Korea's economy grew at an annual rate of 15 per cent compared with 3.5 per cent in the U.S. and about 3.5 per cent in Japan.

From January to June South Korea recorded a $4.1 billion surplus on its current account, the broadest measure of trade flows, compared with just $452 million during the same period the previous year.

Such surplus means that countries are overflowing with cash. Taiwan, for example, has official foreign exchange reserves of $62 billion, among the largest in the world. Those reserves make it difficult for Taiwan to argue that it cannot afford to open its markets.

Taiwan already is making it easier for its people to move capital abroad, partly to reduce its reserves. South Korea also is easing restrictions on its securities markets, which is likely to lead to a more sophisticated capital

Forced Out By the Boom

Tokyo's well-known stratospheric cost of living inflicted its most serious diplomatic casualty the other day when Uganda's embassy shut its doors.

Neighbours watched as a large truck showed up in from of the plain, two-storey building in the capital's Shoto section and carted off Ugandan Government documents jammed into cardboard boxes. Embassy officials declined to say much as they left, but the Ambassador, Mr. Ernest Obitre-Gama, said that economic reasons had forced him out.

Although he did not elaborate, the message was obvious: his country, where the annual per capita income of $240 is less than the cost of a meal in some restaurants here, could no longer cope with the powerful yen and with the land values that make Manhattan real estate prices look like a steal.

From now on Uganda's affairs in Japan will be handled by its embassy in Beijing. Although the Ugandan situation was extreme, it reflected the hard times many nation's missions face in a capital that habitually winds up at the top of rosters of expensive cities for foreign executives.

Some embassies have been forced to trim their staff or to otherwise make do with less—less entertainment, less costly cable traffic and even less electricity. A Peruvian diplomat said his embassy had found it necessary to restrict the use of air-conditioning in summer and of heating in winter.

Not surprisingly, the missions of developing nations are affected the most, but others have hardly escaped the strong yen's budget-pounding effects.

According to a weekly magazine, Shukan Asahi, *the Venezuelan Ambassador was forced to move from a relatively large house to a more modest apartment building of a type that Japanese, in an uncharacteristic burst of linguistic extravagance, call mansions.*

Another South American diplomat said his embassy now limited overseas telephone calls to hours when rates were cheapest.

Haiti, never a conspicuous presence here, has been reduced to a single diplomat. The embassy, actually a moderately priced apartment in a building shared by at least 13 other foreign missions, hires drivers and other employees on a part-time basis.

market and financial services industry.

"Korea's capital markets will be growing substantially," said Shin Chul Kyoo, senior executive vice-president of Hyundai Engineering & Construction Co., part of the giant Hyundai group. As a result, he said, Hyundai plans to become more involved in financial services.

Yet Korea and Taiwan complain that just as they are beginning to benefit from the yen's rise, the United States is increasing the pressure on them to raise their own exchange rates.

American officials have forced Taiwan to accept a 23 per cent appreciation of the Taiwan dollar since early 1986, while the South Korean won has risen 7 per cent in 1987. But these increases are slight compared with that of the yen. So almost all countries still find it cheaper to import from Taiwan than from Japan.

American officials want the Taiwanese and Korean currencies to appreciate because they fear that otherwise, Japan's enormous trade surplus with the United States could simply be redistributed to other countries in the region.

Meanwhile, just as the high dollar of a few years ago drove U.S. companies to move production offshore, Japanese companies are building factories all around the world to take advantage of cheaper currencies and lower wage costs. In 1986 Japanese companies invested in foreign factories and real estate valued at $14.3 billion, more than double the $6 billion in 1985. A Japanese government study suggested recently that this will rise rapidly, hitting $42 billion by 1991.

For example, Aiwa Co., the Japanese Electronics Company, eliminated more than 1,000 production jobs in Japan and setup shop in Singapore. By the end of the year, Singapore will account for more than 50 per cent of Aiwa's production.

As other companies also move production offshore, Japan's unemployment rate has risen to what is considered in Japan the shocking level of 3 per cent.

As a result of such company moves, some of Japan's biggest imports may be Japanese products, but manufactured elsewhere. And the U.S. may find that it is importing Japanese typewriters made in Taiwan.

Yet the yen's rise is not altogether a blessing for Japan's neighbours.

C.C. Willis, head of the Seoul office of Jardine Fleming Securities, said that some Korean companies face difficulties because they import Japanese components that have become more expensive with the yen's rise against the Korean won. But Korea's overall global trade surplus is soaring, and in time, analysts say, Korea will find other sources for components.

Another concern for some of Japan's neighbours is that they have borrowed yen, so that in dollar terms their loans are getting larger.

The yen's rise is also making strange alliances. China, for example, is looking to two nominal enemies. Taiwan and South Korea, to supply what it used to obtain from Japan. This includes machine tools, industrial equipment, chemicals, cars and electronic equipment.

China's support for North Korea has prevented any diplomatic relations with South Korea, but indirect trade between the two countries, via Hong Kong, officially amounted to $653 million in 1986 and may have been significantly higher. So far this year, South Korea's exports to China are running at twice last year's rate.

Western and Asian diplomats in Seoul and Hong Kong say that North Korea is increasingly concerned about becoming isolated and losing influence with Beijing.

(International Herald Tribune)

GREAT CIVILIZATIONS

Civic society or organised socio-political civilization first took shape within a narrow geographical compass that covered Egypt in the west, Indus Valley in the east, Anatolia (Asia Minor) in the north, and Sumeria (Iraq & Iran) in the south.

Civilization radiated outwards from these centres, reaching the Mediterranean sea board and the islands in the west, and China in the east, around 2000 B.C.

The first cities were very small affairs centred around temples. The highpriest of the temple was also the chief of the city. Very soon some temples became more prominent than others and the highpriests of these temples became the first among city chiefs, or in other words, kings. Being extremely limited in territorial area, these embryonic states were little more than city states. Among the earliest of such states were those of the Indus Valley, Sumer and Egypt.

The *Indus Civilization* is the last of the great civilizations to be discovered. Though a latecomer to history books, the Indus civilization is the oldest of the first great civilizations known. Recent researches at Mehrgarh and other sites in the Indus Valley indicate that the Indus Civilization had its beginnings between 7000 and 6000 B.C. Carbon-14 analysis has shown that the later structures at Mehrgarh belong to the 6th millennium B.C. Earlier structures must therefore belong to a period prior to BC 6000.

It is not known who the builders of the Indus civilization were. In all probability, they were a Mediterranean race, allied to the Dravidians of India. Nor do we know very much of this civilization as the Indus seals still remain undeciphered. But the artifacts that have been found and the structures that have been unearthed indicate a level of civilization no whit behind the fabled civilizations of Sumeria and Egypt.

Sumeria was in the lower valley of the Euphrates and Tigris, in the southern half of Mesopotamia. We do not know who the Sumerians were. They were a broadheaded race, thickset and short in stature with fleshy faces and big noses prolonging the line of the forehead without any intervening depression. Their eyes were widely set apart and slanting. They have been compared by some to the

Turanians of today and by others to the Dravidians of India.

Sumeria had a hectic history. The original Sumerians were overwhelmed by a number of foreign conquerors, through successive centuries – the Akkadians. Babylonians, Assyrians, Chaldeans etc. But all through these conquests and turmoil, the old Sumerian civilization remained intact, being supplemented and reinforced by the conquering races.

The racial origin of the *Egyptians* is also a matter of dispute. Some regard them as a conquering Asian race acquainted with metallurgy and armed with superior weapons, who easily triumphed over the tribes inhabiting the Nile Valley in neolithic times. The history of Egypt, unlike that of Sumeria, was more or less smooth. Except for the invasion of the Asian tribe Hyksos in 1790 B.C. and their occupation of Egypt till 1573 B.C. Egypt was ruled by a succession of indigenous dynasties, under whom the old Egyptian civilization grew to its full dimensions.

On the whole, the Indus, Sumerian and Egyptian civilizations remain the supreme human achievements of the 4th millennium B.C. Around 2000 B.C. the Phoenicians settled on the Syrian coast and laid the foundation of a maritime empire in the Mediterranean.

Hittites established a kingdom in Asia Minor which later expanded eastwards and southwards. At Mycenae (Greek mainland) and Crete and adjoining islands, other tribes about whom also we know very little, built cities that rivalled those of Sumeria and Egypt in splendour.

OUTLINE OF HISTORY

The great Civilizations of Sumeria, Egypt and the Indus Valley open the long and chequered history of mankind. An outline of that history through the ages, from the early civilizations to the Second World War, is given below in chronological order.

B.C. 6000: Neolithic settlements at Mehrgarh, Baluchistan and in the *Indus Valley;* Sundried brick houses; Domestication of cattle, water buffalo, sheep and goats; Cultivation of wheat and barley; Copper known.

5000: Development of farming in the Indus Valley – wheat and barley, fruit trees; jujubu and date; cultivation of cotton —; pottery and beads; Neolithic settlements in *Sumeria;* domestication of animals; Beginnings of farming; Neolithic settlements in *Egypt.*

4000: Invention of potter's wheel and bow drill in *Indus Valley;* kilnfired pottery; red painted wares; beads of local stones and turquoise – copper melting. Susa founded in *Sumeria;* White painted pottery in *Egypt* and development of farming.

3500: Growth of pottery in *Indus Valley;* several varieties of decorated wares; Sumeria develops cuneiform (wedge-shaped) writing; Sumerian temples at Erudu, Ur and Urak; Potter's wheel in use in Sumeria.

3000: Copper alloys in *Indus Valley;* bronze in use; cultivation of wine grape; First dynasty at Ur in Sumeria; Wheeled vehicles in use; linen produced; King Menes the Fighter unites Upper and Lower Egypt; *Phoenicians* settle on the Syrian coast with centres at Tyre and Sidon; Early Minoan civilization in Crete.

2980: Memphis made the capital of Egypt; Pharoah god-king.

2870: Beginnings of Trojan culture in Asia Minor.

2850: Traditional beginnings of civilized life in China.

2650: The first pyramid (stepped pyramid) built in Egypt.

2500: Sixth dynasty in Egypt; Collapse of the Old Kingdom; Dominance of the Ur dynasty over all Sumeria; Sumerian numerical system based on 6 and 12; Lunar calendar; 360 degrees in a circle, 60 minutes in an hour, 60-seconds in a minute, etc.; Egypt introduces calendar of 365 days without adjustments; Egyptians discover use of papyrus; Equinoxes and solstices determined in China; Beginnings of astronomical observations in Sumeria, India, Egypt and China. Harappan civilization in Indus Valley (see Part III India).

2200: Traditional beginnings of the Hsia dynasty in China.

2100: Abraham leaves Ur in Chaldea.

2000: Middle Minoan period in Crete. Mycenae in Greece becomes a centre of civilization. Aryan settlements in India; Vedic civilization takes shape; The composition of the Rig Veda.

1995: Amenemht founds the 12th dynasty in Egypt.

1800: Hammurabi, the Babylonian Emperor, proclaims a code of laws.
1790: Hyksos, an Asian tribe, dispossesses the 13th dynasty and occupies Egypt.
1580: Cretan civilization at its height.
1500: Flowering of Mycenaean civilization in Greece.
1480: Moses leads Israelites out of Egypt.
1400: Myceanaens destroy Knossus palace at Crete. Decay of Cretan civilization.
1380: Amenhotep (Amenophis IV) revolutionises Egyptian religion and proclaims a new religion.
1362: Rebellion in Egypt: Egypt loses her outer possessions.
1345: 19th dynasty in Egypt: Egypt recovers her former power.
1200: Philistines (Phoenicians) from north Mediterranean occupy Palestine. Etruscans, an Asian people, settle in Italy. Homeric siege of Troy by Greeks (?).
1027: Chou dynasty begins in China.
1013: Rise of the Israelites in Palestine. David (1013–973) establishes Israelite hegemony.
1000: Egypt ceases to be a power. Epic civilization in India – composition of the great epics, Ramayana and Mahabharata. Phoenicians develop alphabetical writing.
850: Phoenicians found the city of Carthage on the northern coast of Africa.
753: Traditional foundation of the city of Rome.
621: Draco publishes Athenian laws†
610: Ionian (Sanskrit *Yavana,* Persian and Arabic *Yunani*) city states on the west coast of Asia Minor.
604: A new empire in Mesopotamia with Babylon as capital.
594: Solon reforms Athenian constitution.
586: Babylonians capture Jerusalem.
560: Croesus, reputed to be the richest king of his times, rules Lydia. Lydians issue the earliest known systematic currency.
538: Cyrus founds the Persian Empire and captures Babylon.
509: Foundation of the Roman Republic.
490: Battle of Marathon; Athenians defeat Persians.
483: Death of Buddha in India.
480: Battle of Thermopylae – Spartans under Leonidas wiped out by Persians; Battle of Salamis (naval battle) – Athenians under Themistocles rout the Persians.
479: Battles of Plataea and Mycale – Greek victories over Persia by land and sea respectively; Athenian supremacy in Greece begins; Final end of Persian threat; Death of Confucius in China.
461: Pericles comes to power in Athens.
431: Outbreak of Peloponnesian War between Athens and Sparta.
425: Death of Herodotus.
404: Athenians surrender to sparta; Beginning of Spartan supremacy in Greece.
399: Execution of Socrates.
371: Battle of Leuctra – Thebans defeat Spartans and become the leaders of Greece; Theban hegemony.
347: Death of Plato.
338: Battle of Chaeronea; Philip II of Macedon defeats the Greek city states and becomes supreme in Greece.
336: Alexander becomes the King of Macedon.
334: Battle of Granicus; Alexander's first victory over the Persians.
333: Battle of Issus; Alexander's second victory over Darius of Persia.
332: Alexander captures Tyre and occupies Egypt.
331: Battle of Arbela (Gaugamela); Alexander finally defeats Persians.
330: DDeath of Darius and the end of Persian Empire.
326: Battle of Hydaspes; Alexander defeats Porus of India and conquers the Punjab.
323: Death of Alexander at Babylon; Ptolemy I founds dynasty in Egypt; Alexandria (in Egypt) becomes the intellectual centre of the world.

321: Chandragupta Maurya establishes the Mauryan Dynasty in India; Death of Aristotle.
312: Seleucus I founds dynasty in Asia.
275: Battle of Beneventum; Rome finally defeats Pyrrhus and becomes undisputed master of all Italy.
274: Asoka becomes Emperor of India.
264: Beginning of the First Punic War between Rome and Carthage.
241: End of the First Punic War; Sicily becomes the first province of Rome.
221: Shih Huang Tih completes conquest of all Chinese states.
218: Beginning of the Second Punic War: Hannibal, the Carthagian general attacks Rome.
214: The construction of the Great Wall of China.

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† A stiff code of conduct with severe punishments for minor breaches – hence the term *draconian*.

213: Burning of Chinese classics.
212: Romans capture Syracuse; Archimedes killed.
202: Eastern Han dynasty in China; Hannibal defeated by the Roman general, Scipio Africanus.
201: End of Second Punic War; Rome dominates western Mediterranean.
196: Rome conquers Macedon and Greek city states.
149: Outbreak of Third Punic War.
146: Romans invade Carthage and make it a Roman province.
124: Establishment of a college in China to train civil servants.
110: China under Emperor Wu Ti expands towards south east.
106: Marius and Sulla become Roman leaders.
60: The formation of the First Triumvirate; Pompey, (Julius) Caesar, Crassus.
58: Caesar begins conquest of Gaul.
55: Caesar's conquest of Britain.
53: Crassus, defeated by Persians, falls into disgrace in Rome.
49: Caesar crosses the Rubicon and challenges Pompey.
48: Battle of Pharsalus; Caesar defeats Pompey.
46: Caesar reforms the calendar; later known as the Julian Calendar.
44: Murder of Caesar.
43: The formation of the Second Triumvirate; Antony, Octavian (Augustus), Lepidus.
42: Battle of Philippi; Antony and Octavian defeat Brutus and his associates.
31: Battle of Actium; Octavian defeats Antony and Cleopatra and becomes the Emperor of Rome.
27: Roman Senate confers the title of *Augustus* on Octavian; Octavian becomes *Caesar Augustus*.
4: Birth of Jesus Christ?*.
A.D. 6: China institutes Civil Service Examination.
14: Augustus dies.
29: Crucifixion of Christ.
64: Great Fire of Rome.
70: Emperor Titus suppresses Jewish revolt and destroys Jerusalem.
79: Vesuvius volcano erupts and destroys the famous Roman towns of Pompeii and Herculaneum.
80: Completion of the Roman Colosseum.
97: Chinese penetrate into Persian Gulf.
117: Roman Empire reaches its greatest extent under Hadrian.
180: Death of Marcus Aurelius. Beginning of the decline of the Roman Empire.
212: Emperor Caracalla gives Roman citizenship to all the free citizens of the empire.
220: Period of Civil War in China begins.
230: Emperor Sujin in Japan organises a Japanese empire.
251: Goths defeat and kill the Roman emperor Decius.
284: Diocletian becomes emperor of Rome; persecution of Christians reaches its climax.
306: Constantine becomes emperor.
313: Edict of Milan gives tolerance to Christians in the Roman empire.
320: The Gupta dynasty rises in India.
325: The Council of Nicaea, first General Council of the Christian Church.
378: Battle of Adrianople; Goths defeat and kill Eastern Roman Emperor Valens.
395: Final division of the Roman Empire into Eastern and Western empires.
410: Alaric the Goth captures and destroys Rome. This is taken to be the end of the Roman Empire.
415: Visigoths begin conquest of Spain.
429: Vandals begin conquest of North Africa.
452: Attila invades Italy.
455: Rome pillaged by Vandals.
476: Romulus Augustulus, the last Western Roman emperor, deposed by Odovacar; The end of Western Roman Empire.
481: Clovis becomes the King of Franks and occupies Gaul.
527: Accession of the Eastern Roman Emperor Justinian I.
529: Publication of the Civil Code by Justinian.
538: Justinian builds the famous Christian church Hagia Sophia at Constantinople.
570: Birth of Mohammed.
589: Unification of China under the Ch'en dynasty.

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* Dating 4 B.C. as the year of Christ's birth has always been a matter of dispute among chronologers and hence it is given with a question mark. Christian Era commenced on January 1, 754 AUC (ab urbe condita – "from the foundation of the city of Rome)".

Dionysius Exiguus, the Scythian monk who invented AD reckoned the birth of Christ to have occurred in 753 AUC; but Christ was born under Herod the Great according to the Gospels; ie., at the latest in 750 AUC.

This dating though disputed has continued in use to the present day and, as a result, the Nativity is reckoned to have taken place in or shortly before the year 4 BC when Herod died.

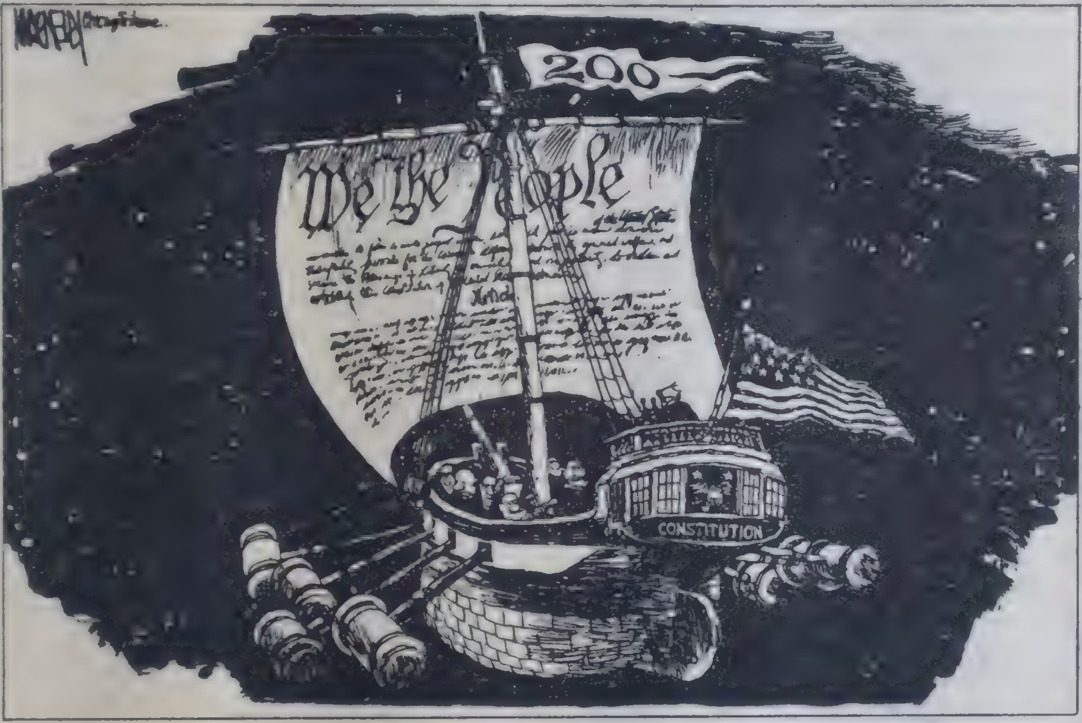
618: Tang dynasty comes into power in China.
622: Hejira or flight of Mohammed from Mecca to Medina; Beginning of the Mohammedan era.
632: Death of Mohammed; Accession of Abu Baker, the first Caliph.
636: Muslims occupy Damascus.
638: Capture Jerusalem.
641: Persia conquered by Muslims.
643: Occupy Alexandria.
698: Invade Carthage.
718: The greatest Muslim attack on Constantinople fails.
732: Advance in Spain halted by Charles Martel.
750: Beginning of Abbasid Caliphate (replacing Ommayyads).
786: Accession of Haroun-al-Rashid in Baghdad.
800: Coronation of Charlemagne as Holy Roman Emperor.
814: Death of Charlemagne and the division of his empire.
827: Muslims invade Sicily.
840: Muslims capture Bari and occupy Southern Italy.

843: Treaty of Verdun; Final division of the Carolingian Empire founded by Pipin, King of France, in A.D. 751; Beginning of France and Germany as separate states.
862: Rurik founds Viking state in Russia, first at Novgorod, later at Kiev.
866: Fujiwara period begins in Japan.
868: The first printed book in China.
899: Death of Alfred the Great in England.
900: Ghana in North West Africa at the height of its power.
960: Beginning of Sung dynasty in China.
982: Norsemen discover Greenland.
987: Hugh Capet, King of France, founds Capetian dynasty.
1000: Leif Ericsson discovers North America.
1016: Canute becomes King of England.
1066: William I, Duke of Normandy, conquers England.
1069: Reforms of Wang-An-Shih in China.
1071: Battle of Manzikert; Seljuks destroy Byzantine army.
1073: Gregory VII becomes Pope.
1075: Seljuk Turks capture Jerusalem.
1086: Compilation of Domesday Book in England.
1095: Council of Clermont; Pope Urban II preaches First Crusade.
1099: First Crusade under Godfrey of Bouillon takes Jerusalem.
1148: Second Crusade fails to capture Damascus.
1152: Accession of Emperor Frederick Barbarossa.
1154: Henry of Anjou establishes the Plantagenet dynasty in England.
1161: Explosives used in warfare in China.
1176: Battle of Legnano; Frederick Barbarossa defeated by the Lombard League; Italian states become autonomous.
1185: Kamakura period in Japan; Epoch of feudalism in Japan which lasts until 1333.
1189: Third Crusade under Frederick Barbarossa, Philip Augustus of France and Richard the Lion Heart of England.
1192: End of the Third Crusade without regaining Jerusalem.
1204: Fourth Crusade captures Constantinople.
1206: Jengiz Khan becomes King of the Mongols and overruns Central Asia.
1212: Battle of Las Navas de Tolosa; Spaniards win decisive victory over the Muslim Moors.

1215: Fourth Lateran Council; Papal authority reaches its zenith; Magna Carta in England.
1237: Mongols invade Russia.
1260: Kublai Khan rules in China.
1291: The League of Uri; Beginning of the Swiss Confederation; Crusades end.
1309: Papacy moves to Avignon; Beginning of the *Babylonian Captivity*.
1314: Battle of Bannockburn; Robert Bruce of Scotland defeats the English army.
1336: Ashikaga period in Japan.
1338: Beginning of the Hundred Years' War between England and France.
1346: Battle of Crecy; English victory over the French and the Scots.
1348: Black Death reaches Europe.
1356: Battle of Poitiers; Black Prince of England defeats the French.
1360: Peace of Bretigny; Edward III of England gains territories in France.
1362: English made the official language in England.
1363: Timur (Tamerlane) begins his career of conquest in Asia.
1368: Ming dynasty in China.
1377: Pope returns to Rome; End of Babylonian Captivity.
1381: Peasants Revolt in England.
1398: Timur invades North India.

1415: Battle of Agincourt; Henry V of England gains a decisive victory over France.
1429: Joan of Arc leads the French army and takes Orleans.
1431: Joan of Arc burnt at stake as a witch.
1453: Turks capture Constantinople and end the Byzantine or the Eastern Roman empire; End of the Hundred Years' War.
1455: First battle of St. Albans; Beginning of the Wars of the Roses in England.
1469: Marriage of Ferdinand of Aragon with Isabella of Castile and the formation of the modern kingdom of Spain.
1485: Battle of Bosworth Field. Beginning of Tudor period in Engalnd.
1488: Bartholomew Diaz rounds Cape of Good Hope.
1492: Christopher Columbus discovers the West Indies.
1497: John Cabot discovers Newfoundland.
1498: Vaso da Gama reaches Calicut by sea.
1499: Amerigo Vespucci charts part of the South American coast.
1500: Bedro Cabral discovers Brazil.
1517: Martin Luther begins the Reformation; Turks conquer Egypt.
1520: Suleiman the Magnificent becomes Sultan of Turkey; Turkish power at its height.
1521: Cortes conquers Mexico. Turks capture Belgrade.
1526: Battle of Panipat; Babar founds Mughul Empire in India.
1532: Francisco Pizarro conquers Peru.
1533: Ivan IV (the Terrible) becomes Czar of Russia.
1534: Act of Supremacy; Hency VIII assumes control over English Church.
1542: First Portuguese sailors reach Japan.
1545: Opening of the Council of Trent.
1556: Akbar becomes Mughul Emperor.
1557: Macao becomes a permanent Portuguese port in China.
1558: Elizabeth I becomes Queen of England.
1577: Drake begins voyage round the world returning by 1580.
1582: Pope Gregory XIII introduces (New style) Gregorian Calendar.
1585: Hideyoshi, dictator of Japan, unifies the country.
1588: English defeat the Spanish Armada.
1598: Edict of Nantes; French Protestants given liberty of worship; End of French Wars of Religion.
1600: English East India Company formed.
1602: Dutch East India Company founded.
1603: Union of English and Scottish Crowns; James VI of Scotland becomes James I of Britain.
1611: Publication of the Authorised Version of the English Bible.
1613: Michael Romanov becomes Czar of Russia and establishes the Romanov dynasty.
1620: Pilgrim Fathers settle in New England.
1624: Richelieu becomes Chancellor in France.
1628: Petition of Rights in England.
1636: Japanese forbidden to go abroad.
1641: Jaapanese exclude all foreigners from Japan, except small Dutch trading ships.
1642: Outbreak of the English Civil War between Royalists and Cavaliers.
1644: Ching dynasty (Manchu) in China.
1649: Charles I of England executed; Cromwell becomes Protector of England.
1652: The Dutch establish Cape Colony.
1660: Restoration of monarchy in Britain; Charles II founds the Royal Society.
1661: Mazarin, who succeeded Richelieu as the Chancellor of France, dies; Louis XIV takes over the government in person.
1655: Great Plague of London.
1666: Great Fire of London.
1688: Glorious Revolution in England; James II abdicates the British throne.
1689: Bill of Rights in England.
1694: Founding of the Bank of England.
1696: Peter the Great becomes Czar of Russia.
1701: War of Spanish Succession begins.
1704: Marlborough wins the Battle of Blenheim.
1721: Robert Walpole becomes the first Prime Minister of England.
1739: Nadir Shah of Persia sacks Delhi; War of Jenkins' Ear begins between Spain and Britain.
1740: Frederick the Great becomes King of Prussia; Maria Theresa succeeds to the Austrian throne; Beginning of the War of Austrian Succession.
1751: Clive takes and holds Arcot in India and checks French advance; Chinese conquest of Tibet.
1756: Seven Years' War begins.
1757: Clive conquers Bengal.
1760: Battle of Wandiwash; The English defeat the French in India.
1762: Catherine II becomes Czarina in Russia.
1770: James Cook discovers New South Wales.
1776: American Declaration of Independence.

200 Years of US Constitution



Philadelphia: The delegates finished their work 200 years ago on September 17. In just a few thousand words they framed a structure of government strong enough, and flexible enough, to survive the social and economic and scientific revolutions of these last two centuries.

The birthday of the American Constitution is an occasion for national pride without cynicism, without apology. For any human institution to last as long as 200 years is remarkable. That America's fundamental law survives, and keeps Americans in freedom and prosperity, may be called a secular miracle.

But there is a strange thing. At this time of national celebration a good many Americans sound gloomy about their country's prospects. In London, The Economist had on its cover a frowning Statue of Liberty. The headline asks, "Whatever Happened to America's Smile?"

The American paranoia about communism has never seemed more irrational. The fact is that the West has won the war of ideas. The Third World is turning toward market economics, and so to a degree are the Soviet Union and China. The ideals of human liberty are proving hard to resist, too.

Americans should take pride in the appeal of the ideas written into their Constitution in 1787: limited state power, guaranteed individual freedoms. Instead, some who call themselves conservatives seem worried about them.

Voices of the American right are on the attack against the whole system of checks and balances. They want the president to have absolute power in foreign policy, for example. If Congress says no to aiding the Nicaraguan contras, the president should ignore it and spend the money.

(Excerpts from an article by Anthony Lewis in The New York Times.)

1787: The drafting of the American Constitution.
1789: French Revolution begins; Storming of the Bastille (July 14); George Washington becomes the first President of USA.
1792: France becomes a Republic.
1793: Louis XVI beheaded.
1795: Napoleon Bonaparte disperses Paris mob (Oct. 5).
1804: Bonaparte becomes Emperor.
1805: Battle of Trafalgar and Nelson's death; Battle of Austerlitz (Dec. 2).

1807: Napoleon controls all Europe; Slave trade abolished in the British Empire.
1808: Peninsular War begins.
1812: Napoleon's retreat from Moscow.
1815: Battle of Waterloo, Napoleon sent to St. Helena.
1823: President of. USA announces "Monroe Doctrine."
1832: First Reform Bill in England.
1833: First British Factory Act.
1837: Queen Victoria succeeds to the British throne.
1840: Introduction of the penny postage in England.
1846: Repeal of the Corn Laws and the resignation of Peel.
1848: Louis Philippe of France abdicates; Second French Republic proclaimed; *Marx and Engels* publish *the Communist Manifesto;* Gold discovered in California.
1849: Britain annexes the Punjab.
1851: Submarine telegraph cable between Dover and Calais; Discovery of gold in Australia.
1852: Napoleon III becomes Emperor of France.
1853: Commander Perry lands in Japan.
1854: Crimean War.
1856: Livingstone completes journey across Africa.
1857: First war of Indian Independence.
1858: British Crown assumes Government of India.
1861: Abraham Lincoln becomes President of the United States; American Civil War.
1862: Bismarck becomes the Chancellor in Prussia.
1865: Abolition of Slavery in USA; Assassination of Lincoln.
1867: Dominion of Canada established, Russia sells Alaska to America.
1868: Shogunate abolished in Japan; Meiji period of rapid westernisation under imperial leadership begins.
1869: Opening of the Suez Canal.
1870: Promulgation of the Doctrine of Papal Infallibility.
1871: Franco-Prussian War, Defeat of France by Prussia; Trade Unions in Britain legalised.
1874: Disraeli succeeds Gladstone as Prime Minister.
1875: England purchases Suez Canal shares.
1886: Britain annexes Upper Burma; Completion of Canadian Pacific Railway; Discovery of gold in Transvaal.
1894: Japan decalres war on China.
1895: Japan occupies Formosa and Korea.
1899: Boer War begins.
1900: Australian Commonwealth proclaimed.
1902: End of the Boer War.
1904: Russo-Japanese War begins.
1905: Russo-Japanese War ends by the Treaty of Portsmouth; Norway separates from Sweden.
1906: First Parliament in Russia.
1907: New Zealand becomes a Dominion.
1909: Union of South Africa formed.
1911: Chinese Revolution; Amundsen reaches South Pole (Dec. 14).
1912: China becomes a Republic under Sun yat Sen; The Titanic disaster.

1914: Archduke Francis Ferdinand of Austria assassinated at Sarajevo (June 28); Serbia suspected of complicity; Austria declares war on Serbia (July 28); The beginning of the first world war; Germany declares war on Russia (Aug. 1), on France (Aug. 3), and invades Belgium (Aug. 3); England declares war on Germany (Aug. 4); Austria declares war on Russia (Aug. 6); Japan declares war on Germany (Aug. 23). Battle of the Marne between France and Germany (Sept. 6-10); German advance halted. Russia declares war on Turkey (Nov. 2); England and France follow suit (Nov. 5).
1915: Germans start air attacks and submarine blockade against Britain; Germans sink American ship Lusitania (May 7).
1916: Battle of Verdun (Feb. 21—July 11). France stops German advance; Battle of Tannenburg; Russian armies humbled by Germany (Aug. 25); Battle of Jutland; Britain breaks German naval strength (May (31), Battle of Somme. France keeps her lines against Germany (July 1—Nov. 18); Lloyd George, Prime-minister, forms war cabinet in

Britain; Germans advance on the Eastern front; Vilna falls (Sept. 18). Rasputin, the Russian monk, assassinated by Prince Felix Yussupov (Dec. 30).

1917: Russian troops mutiny in Petrograd (March 10); Provisional government formed in Russia – Czar Nicholas II abdicates (March 15), USA declares war on Germany (April 16), Bolshevik Revolution begins in Russia (Nov. 6), Armistice concluded between the Revolutionary Government in Russia and Germany (Dec. 5).

1918: Treaty of Brest-Litvosk between Germany and Bolshevik Russia (March 3). The British captures Jerusalem (Dec. 8), Czar, Czarina and children executed at Ekateringburg. Revolution breaks out in Germany; Emperor William II abdicates; German Republic proclaimed (Nov. 9). 1919: Peace conference opens in Paris (Jan. 18); Benito Mussolini founds Italian Fascist Party; Jalianwalla massacre in India (April 13); Treaty of Versailles signed (June 28).

1920: First meeting of the League of Nations.

1921: Formation of the Irish Free State.

1922: Mussolini marches on Rome and the Fascist Party takes over the Government of Italy.

1923: Turkish Republic proclaimed under Kemal Pasha.

1924: The first Labour Ministry in Britain under MacDonald; Greece becomes a Republic; Lenin dies (Jan. 21).

1927: Col. Lindbergh flies across the Atlantic.

1928: Capt. Kingsford Smith flies across the Pacific.

1929: Wall Street Crash; The beginning of the Great Depression.

1933: Hitler appointed Chancellor by Hindenburg; German Reichstag set on fire (Feb. 27).

1934: Austrian Chancellor Dollfuss murdered (July 25); Hindenburg dies and Hitler becomes dictator.

1935: Italy starts war against Ethiopia.

1936: Italians occupy Addis Ababa; Civil War breaks out in Spain; King Edward VIII of England abdicates; Duke of York succeeds King Edward as King George VI.

1938: Munich Agreement between Chamberlain (England), Daladier (France), Hitler (Germany) and Mussolini (Italy).

1939: General Franco establishes dictatorship in Spain (Feb.); Germans invade Poland; Germans and Russians partition Poland; Second World War begins (Sept.).

1940: Germany invades Denmark, Norway, Holland, Belgium and Luxembourg; British evacuation from Dunkirk; Germans occupy Paris; Russians occupy Lithuania, Latvia and Estonia; France surrenders to Germany (June).

1941: Germany attacks Russia (June); Japanese attack on Pearl Harbour (Nov. 7); Japanese occupy Malaya, Philippines and Sarawak.

1942: Japanese navy defeated by US fleets off Midway Island (June); Battle of El Alamein (October 23); The Allies rout German forces; The Germans retreat.

1943: Axis Powers – Germany, Italy and Japan – in retreat over all the war zones; Mussolini resigns; Italian Fascist Party is dissolved; Churchill, Roosevelt and Stalin, leaders of the victorious Allies, meet at Teheran.

1944: Allies enter Rome; Allies liberate France, Belgium, Holland and Bulgaria.

1945: Americans invade Okinawa; Japanese Cabinet resigns: President Roosevelt dies (April 12); Mussolini and his mistress shot dead by Italian partisans (April 28); Hitler commits suicide (April 30); German forces surrender to Allied armies (May 8).

POST WORLD WAR TWO

The signing of the United Nations Charter in 1945 was a landmark in man's quest for peace. After 40 years of its existence, the world community is now taking stock of its achievements and failures. (For U.N. see chapter on International Organisations.)

1945: The UN Charter was signed at San Francisco on June 26; Labour Party wins British elections (July 26); Atomic bomb dropped on Hiroshima (Aug. 6); Second atom bomb dropped on Nagasaki (Aug. 9); Japan surrenders to USA; The end of the Second World War; Trial of major war criminals opens at Nuremberg (Nov. 20).

1946: The first regular session of the UN Assembly held in London (Jan.); Trygve Lie elected the first Secretary General; Formal winding up of the League of Nations; Meeting of the UN General Assembly in New York (Oct. 23); Nuremberg sentences on Nazis carried out; Goering commits suicide.

1947: Indonesia becomes free; India and Pakistan assume Dominion status (Aug. 15); The partition of Palestine approved by the UN; King Michael of Romania abdicates; Romania becomes a Republic.

1948: Burma becomes a Republic; Gandhiji assassinated (Jan. 30); Ceylon becomes independent; C. Rajagopalachari succeeds Mountbatten as the Governor General of India; Jews proclaim the new State of Israel in Palestine.

1949: General Mao-Tse-Tung proclaims the People's Republic of China; Chinese Nationalist Government sets up headquarters in Formosa; United State of Indonesia comes into being.

1950: The proclamation of the Republic of India (Jan. 26); The Korean War begins; George Bernard Shaw dies aged 94 (Nov. 2).

1951: Libya becomes independent.

1952: King George VI of Great Britain dies and is succeeded by his daughter Elizabeth II; Olympic Games open at Helsinki (July 1).

1953: Stalin dies aged 74 (March 6); Dag Hammarskjold elected Secretary General of the UN; Hillary and Tensing conquer Everest (March 29); Korean armistice signed.

1954: Formation of the Federation of Rhodesia and Nyasaland; French settlements in India pass under Indian control.

1955: Afro-Asian Conference at Bandung; Albert Einstein dies (April 18).

1956: Sudan becomes an independent Republic; Pakistan proclaims itself an Islamic Republic; France leaves Indo-China; Col. Nasser becomes President of Egypt; Nationalisation of Suez Canal by President Nasser; Revolt in Hungary against communist regime; Russia sends troops to Hungary to quell the revolt.

1957: Saar added to the German Federal Republic; Polish Communist Party under Gomulka comes to power in Poland; Ghana becomes independent; Tunisia becomes a Republic; First Earth satellite (Sputnink I) launched by Russia.

1958: The first American Earth satellite Explorer I launched; Iraq becomes a Republic; French Guinea becomes an independent Republic.

1959: Batista Government in Cuba overthrown by Fidel Castro; Alaska becomes the 49th State of USA; inauguration of the Fifth French Republic under De Gaulle; the Chinese occupy Tibet; Dalai Lama flees to India; Bandaranaike, Prime Minister of Ceylon, assassinated; Archbishop Makarios elected first President of Cyprus.

1960: Cameroon, Togo, Belgian Congo, Ghana, Cyprus and Somalia become independent Republics. Congo (Brazzaville), Chad, Central African Republic and Malagasy become independent. Olympics at Rome (Aug.); Nigeria becomes an independent Republic in the Commonwealth.

1961: Rwanda and Burundi in Africa become Republics; Sierra Leone and S. Cameroon become independent; South Africa becomes a Republic and withdraws from the Commonwealth; Conference of non-aligned nations at Belgrade; Syria secedes from the United Arab Republic; Tanganyika becomes independent within the Commonwealth; India annexes the Portuguese enclaves Goa, Daman and Diu.

1962: General Ne Win seizes power in Burma; China begins attack on India's northern frontier (Sept. 19); U Thant elected Secretary General of United Nations (Nov. 30).

1963: China and Pakistan sign frontier treaty; Egypt, Syria and Iraq form Arab Federation; Malaya, Singapore and South Borneo form Malaysian Federation; The assassination of President John F. Kennedy in Dallas, Texas (Nov. 22); Zanzibar becomes independent.

1964: Agreement signed between Tanganyika and Zanzibar forming a new State, Tanzania; Jawaharlal Nehru, Prime Minister of India, dies (May 27); Malta becomes independent; Soviet Premier Krushchev ousted; Alexei Kosygin becomes Premier and Leonid Brezhnev, Secretary of the Communist Party; Olympiad at Tokyo (Oct.).

1965: Field Marshal Ayub Khan is elected President of Pakistan; Indonesia withdraws from UN (Jan. 5); Sir Winston Churchill dies (Jan. 24); Dr. Albert Schweitzer dies (Aug. 15); Rhodesia seizes independence; Mobutu takes over in a bloodless coup in the Congo.

1966: Army takes over the Government of Ghana, deposes President Nkrumah; Sukarno (Indonesia) hands over power to Army Chief Suharto (Mar. 12); Guyana (Guiana) becomes independent.

1967: India signs International Space Treaty in Moscow; Gen. Suharto becomes President of Indonesia; Konrad Adenauer, former West German Chancellor, dies; Nassar blocks gulf of Aquaba, Israel's vital sea outlet; Eastern Nigeria secedes to become Biafra Republic. Israel

WONDERS OF THE WORLD

1. The Pyramids of Egypt. These royal tombs which housed the dead Pharaohs of Egypt are about 70 in number and lie on the west side of the Nile beginning at Gizeh (Gisa) opposite Cairo and extend south for some 60 miles or so. They represent 1200 years of Egyptian history.

2. The Hanging Gardens of Babylon were near the Euphrates River, in the palace of King Nebuchadnezzar, 60 miles south of the present city of Baghdad, and not far from the eastern border of the Syrian Desert of Northern Arabia.

3. The Temple of Artemis (Diana), in Asia Minor at Ephesus, an ancient but now vanished city, was south of Smyrna. It was built in the fifth century B.C. by the Ionian cities, as a joint monument from plans drawn by the architect Ctesiphon.

4. The Tomb of Mausolus, King of Caria, in Asia Minor was at Halicarnassus, on the eastern side of the Aegean Sea. It was built of marble about 352 B.C. by Queen Artemisia.

5. The Colossus at Rhodes was a bronze statue of the Greek Sungod Helios, 70 cubits (about 109 feet) high, erected by Charles of Lindus at the port of the City of Rhodes on the island of Rhodes in the eastern part of the Mediterranean Sea.

6. The Statue of Zeus (Jupiter) was in the valley of Olympia, province of Elis, 12 miles or so inland from the west coast of the southern peninsula of Greece, which was then called the Peloponnesus.

7. The Pharos of Alexandria, a white marble lighthouse or watch-tower on the island of Pharos, in the port of Alexandria, Egypt was completed by King Ptolemy Philadelphus, 265-247 B.C.

Other Wonders:

The Sphinx, near Gizeh in Egypt, is a great wingless crouching lion hewn out of solid rock, 172.5 feet long, and 66 feet high. Between the two extended paws is a granite altar with inscriptions apparently indicating that it was built during the time of the Fourth Dynasty, around 2500 B.C.

The Great Wall of China, built in the third century B.C. extended along the northern frontier of the country, from the northern part of the Gulf of Chihli on the Yellow Sea, north of Peking, in a zigzag course, to Syning, on the border of Turkestan 3219 km long.

Stonehenge is a circular assemblage of huge, shaped stones in Salisbury plain about 90 miles south west of London. The stones are arranged in two circles one within the other. 1800-1500 B.C.

The Catacombs at Rome were the sepulchres of the early Christians, and consisted of more than 40 groups of labyrinths, or galleries and chambers, covering 615 acres, sometimes, going down to 5 storeys (70 feet) below the surface of the ground.

The Circus Maximus at Rome, built 605 B.C. by King Tarquin and rebuilt and enlarged by Julius Caesar could hold 385,000.

The Coliseum, or Colosseum at Rome, one of the largest amphitheatres in the world, was begun by the Emperor Vespasian and finished by the Emperor Domitian in 82 A.D. Fifty thousand persons could sit and 20,000 stand in it.

Hagia Sophia or the Church of St. Sophia at Constantinople (Istanbul) was built as a Christian cathedral by the Roman Emperor Justinian in 531—538 A.D.

The Leaning Tower of Pisa is one of the wonders of the Middle Ages. It is a round, 8-storey bell-tower and was built of marble in 1154 A.D.; it is 188 feet high. Architect Bonannus of Pisa.

Angkor Wat or Nakhon Wat is a temple in Kampuchea, dedicated to Vishnu. It was built during the reign of Suryavarman II. The temple is situated south of the Angkor city which was the capital of ancient Cambodia. The city was built between 800 and 1200 A.D.

The Alhambra at Granada is a fortress in southern Spain. It was built by the conquering Arab Moors who established a Caliphate in Spain with Cordoba as the first capital. When the Christians reconquered Cordoba, the Caliphate capital was removed to Granada.

The Porcelain Tower of Nanking was built in that ancient capital of South China in the early part of the 15th century.

The Taj Mahal at Agra, popularly called The Taj, is a masterpiece of architecture that easily takes its place among the Wonders of the World. It is a mausoleum built by the Mughal Emperor Shah Jehan over the tomb of his wife, Empress Mumtaz Mahal. Its construction was started in 1631 and completed in 1653.

Shwe Dagon or the Golden Pagoda is a Buddhist shrine in the outskirts of Rangoon in Burma. It was probably built late in the 13th century or early in the 14th. The Pagoda is especially sacred to Buddhists because it enshrines 8 of Buddha's hairs.

strikes a pre-dawn blow on UAR, Syria and Jordan and captures Gaza, Sinai and Jerusalem. Fighting ends in Suez Canal area with acceptance of cease-fire; Russia celebrates the 50th anniversary of the Bolshevik Revolution.

1968: South Pacific Island of Nauru and Mauritius become independent. Martin Luther King assassinated (Mar. 5); Soviet Union and Warsaw Pact countries forces invade Czechoslovakia; Swaziland becomes independent; the 19th Olympic Games open in Mexico City (Oct. 9); Equatorial Guinea becomes independent.

1969: U.S. astronauts Neil Armstrong and Edwin Aldrin set foot on the Moon (July 21). President Dr. Ho Chi Minh (79), the Father of North Vietnam, passes away (Sept. 4).

1970: The 30-month-fighting for a separate Biafra collapses. Bertrand Russell (97) passes away (Feb. 3); President Gamal Abdel Nasser (52) dies (Sept. 29); Charles de Gaulle (79), former President of France, dies (Nov. 10); Defence Minister Hafez Assad seizes power in Syria (Nov. 14); Soviet Lunokhod 1 lands on Moon. (Nov. 17); Awami League led by Sheik Mujibur Rahman gets absolute majority in Pakistan's first general election.

1971: Inauguration of the Aswan Dam in Egypt (Jan. 15); Apollo 14 astronauts Shepard and Mitchell land on the Moon (Feb. 2); Mujibur Rahman declares Bangladesh independent (Mar. 26); Mujibur Rahman arrested by the Pakistan army; Russia sends up Salyut I; Soyuz X links with Salyut in space (April 19); Apollo 15 launched (Aug. 8); China admitted to the UN; Taiwan expelled (Oct. 25); Union of Arab Emirates formed (Dec. 2); Pakistan attacks India from the west (3); India recognises Bangladesh, Pakistan army in Bangladesh surrenders (16); Indo-Pakistan war ends (17); Yahya Khan resigns Pakistan Presidentship, Bhutto becomes President (20); Dr. Kurt Waldheim appointed UN Secretary General.

1972: Bhutto releases Mujibur Rahman (Jan. 8); Pakistan leaves Commonwealth (Apr. 21); Fourth Conference of non-aligned nations meets in Georgetown, Guyana (Aug. 8); Twentieth Olympics open at Munich (26); Bloodbath in Olympic village; Arab guerillas kidnap and kill Israeli sportsmen; Nixon elected President for a second term (Nov. 8).

1973: Britain joins E.C.M. (Jan. 1); Awami League led by Mujibur Rahman wins first election in Bangladesh (Mar. 2); Pablo Piccasso dies (April 8); Bahamas becomes independent (July 10); Afghanistan ends monarchy and becomes a Republic (18); W. Germany, East Germany and Bahamas become U.N. members (19); War breaks out in West Asia between Israel and Egypt and Syria (Oct. 6); Ceasefire in West Asia (22).

1974: Mohommadulla elected President of Bangladesh (Jan. 24); Libya nationalises American oil companies (Feb. 11); Pakistan recognises Bangladesh (22); Emperor Haile Selassie deposed (27); Jigme Singye Wangchuk crowned King of Bhutan (June 2); Cyprus army overthrows President Makarios (July 15); Nixon resigns presidency; Gerald Ford takes over as the 38th President of USA (Aug. 9); UN admits Bangladesh, Guinea-Bissau and Grenada as members; Labour wins British elections with a narrow majority (Oct. 11). U. Thant, former UN Secretary General, dies in Burma (25); Malta becomes a republic (Dec. 15).

1975: Mujib assumes full powers as President; One-party rule in Bangladesh (Jan. 25); Margaret Thatcher elected first woman leader of the British Conservative Party (Feb. 11); King Faisal of Saudi Arabia assassinated (25); Taiwan's President Chiang Kaishek dies (April 5); Saigon surrenders to communists (30); Mrs. Junko Tabei (36) of Japan becomes the first woman mountaineer to scale Mt. Everest (May 17); Suez Canal is reopened after eight years (5). Mozambique becomes free after nearly 500 years' Portuguese rule (July 6); Sao Tome and Principe Islands off the west coast of Africa achieve independence from Portugal (12); Soviet 'Soyuz' and American 'Apollo' space ships link up in space (17); Army coup in Bangladesh; Mujibur Rahman killed; New regime under Khondekar Mushtaq Ahmed (Aug. 15); Isreal signs agreement with Egypt (Sept. 1); Papua (New Guinea) becomes free (15); Special UN session adopts plan for new world economic order (16); The Nobel Peace Prize goes to the father of Soviet hydrogen bomb, Dr. Sakharov (Oct. 9); 'Venus'-9 softlands on planet Venus while module becomes satellite; Arnold Toynbee is dead (22); Angola becomes free from Portuguese rule; Spanish dictator Franco dies (Nov. 20); Juan Carlos becomes King of Spain (22); Laos becomes a Republic (Dec. 3).

1976: Military chiefs take over in Argentina, arrest Mrs. Peron and dissolve Parliament (24); James Callaghan is the new British PM. Hua

The Largest Number of Billionaires

Japan has more billionaires than any other country.

Sam Morre Walton, founder of Wal-Mart Stores Inc., may well be the richest American, but there are several Japanese who are richer than him and his fortune pales compared to that of the richest Japanese, Yoshiaki Tsutsumi, a real estate magnate.

While Mr. Walton's net worth is estimated at $ 4.5 billion, Mr. Tsutumi's is estimated at $ 21 billion, Forbes *magazine said.*

Forbes published a list of 22 Japanese billionaires, saying there were probably many more. The United States, it said, had 21 billionaires, when families with more than one are counted as a single unit.

Mr. Tsutsumi, 53, oversees Seibu Railway Group, and is Japan's largest private landowner, whose assets include train lines, resorts, 24 golf courses, ski slopes, a professional baseball team and Prince Hotels.

Fourteen of the 22 billionaires on Forbes's *list owe the bulk of their fortune's to Japan's overheated real estate market. Among them are Taikichiro Mori, Tokyo's biggest private landlord, who has a net worth of $ 16 billion, and Shigeru Kobayashi, head of Shuwa Co. His net worth is $ 6 billion, Forbes said.*

Japan's land area is 3 per cent of that of the United States, but its total land value, about $ 8 trillion, is more than double the United State's.

* * *

What do a sultan, two queens, a potato processor and a college dropout have in common?

Billions, according to Fortune *magazine. They and 127 other people control the world's billion-dollar family fortunes — 98 of them.*

Heading the list are Sultan Hassanal Bolkiah of Brunei, 41, who is worth $ 25 billion, and King Fahd of Saudi Arabia, 67, worth $ 20 billion, Fortune reported in its latest issue.

The youngest billionaire listed was William Gates, 31, of Seattle, Washington, founder of the Microsoft computer software company. A Harvard dropout, he according to Fortune is worth $ 1.2 billion.

There are three members of the Mars family, famous for their candy bars; two Rockefellers; August Anheuser Busch Jr. and Alfred Henry Heineken, both beer brewers; three Marriotts, of the hotels; and Estee Lauder, 79, the queen of cosmetics. And there are two real queens — Elizabeth II, 61, of Britain, with an estimated $ 7.4 billion, and Beatrix, 49, of the Netherlands, with $ 4.4 billion.

John Richard Simplot, 78, heads the world's largest potato growing and processing outfit, J.R. Simplot Co. of Boise, Idaho. Fortune says he is worth $ 1 billion.

Kuo-feng is made Chinese Premier; Mrs. Gandhi and Brezhnev sign Moscow declaration to further freindship and co-operation (June 11); Vietnam is unified (24); Seychelles becomes independent (29); Airborne Israeli Commandos destroy Ugandan planes, kill 100 Ugandans and free Air France Air-bus passengers from hijackers at Entebe, Uganda (July 4); Over 9000 die in Iran earthquake of June 26 and 28 (8); Exodus by 16 African nations as Montreal Olympics opens reduces the games to a virtual "White affair" (17). US Probe lands on Mars (20); Soares heads first democratic Government in Portugal (23); Non-aligned summit opens at Colombo (Aug. 16); Second World Hindi Conference in Mauritius; Khan Abdul Ghaffar Khan is released in Pakistan (28); Mao Tse-tung dies (Sept. 9); Hua Kuo-feng succeeds Mao (9); Mao's widow Mrs. Chiang Ching and three top radicals arrested (12); India elected to UN Security Council (23).

1977: Jimmy Carter sworn in President of the United States (Jan. 20); Mohammed Daud sworn in President of the Republic of Afghanistan (Feb. 17); Bhutto's People's Party wins landslide victory in Pak Polls (March 8); Maj. Gen. Ziaur Rahman sworn in new Bangladesh

President (April 21); Leonid Brezhnev elected Soviet President (June 16); Djibouti becomes independent (27). Coup in Pakistan; General Zia-ul-Haque takes over. Bhutto deposed and arrested (July 5); Ruling (Sirimavo's) Party routed in Sri Lanka Poll – Jayawardene becomes Premier (22); Bhutto released. Cyprus President Archbishop Makarios dies (Aug. 3); Ian Smith wins election in Rhodesia (Sept. 1); President Sadat of Egypt makes a historic visit to Israel (Nov. 19); Arab front against Egypt formed (Dec. 4); Charlie Chaplin dies (25). **1978:** Jayawardene sworn in as First President of Sri Lanka (Feb. 4); Military junta seizes power in Afghanistan (Apr. 27); Zia-ur-Rahman wins Bangladesh Presidential election (June 4); Argentina wins World Cup Football beating Holland, 3-1 (25); Coup in South Yemen (26); Army officers seize power in Mauritania (July 10); Commonwealth Games at Edmonton, Canada (Aug. 3); President Jomo Kenyatta of Kenya dies (22); Zia-ul-Haque sworn in as President of Pakistan (Sept. 16): Peter William Botha elected South African P.M. (26); Daniel Arap Moi elected President of Kenya (Oct. 6); Asian Games begin in Bangkok (9).

1979: International Year of the Child opens (Jan. 1); Shah leaves Iran (16); Ayathollah Khomeini returns to Iran after 14 years of exile (Feb. 1); Iran proclaimed Islamic Republic (Apr. 1); Bhutto exeecuted (4); Greenland gets home rule (May 1); Margaret Thatcher becomes the first woman Prime Minister of Britain (4); 'Bhaskara' launched from Soviet Union (June 1); Salt II agreement signed by Carter and Brezhnev in Vienna (18); Skylab plunges down off the western Australian coast (July 11); Mountbatten killed in an explosion off Ireland (Aug. 27); Sixth Non-Aligned Conference opens in Havana (Sept. 3); Emperor Bokassa of the Central African Empire overthrown in a coup (21); Army seizes power in Bolivia (Nov. 1); Iranian students occupy US Embassy in Teheran and holds the residents hostages (4); Muslim extremists seize Kaaba Mosque in Mecca (21); Hafizulla Amin of Afghanistan killed in a coup (Dec. 27).
1980: U.S. halts grain shipments to Russia in retaliation to the latter's occupation of Afghanistan (Jan. 5); Trudeau returns to power in Canada (Feb. 19); Army seizes power in Surinam (25); Jesse Owens, American Olympic Champion, dies (Mar. 31); Jean Paul-Sartre, French philosopher and writer, dies (April 16); Free Zimbabwe born (17); U.S. attempt to free hostages in Iran fails (22); Marshal Tito of Yugoslavia dies (May 4); China admitted to the World Bank (16); China successfully tests long-range rocket (ICBM) (18); Japanese P.M. Ohira dies; Suzuki new P.M. (June 12); Moscow Olympics begin (July 19); Polish workers wrest right to strike (Aug. 30); Regional meeting of Commonwealth Heads of Government (CHOGRAM 2) opens in Delhi (Sep. 4); Hua resigns Premiership of China; Zhao Ziyang takes over (6); Libya and Syria announce merger (10); Quake in Algeria kills 20,000 (Oct. 10); Emergency proclaimed in Sri Lanka (14); Mrs. Bandaranaike stripped of civic rights (16); Kosygin resigns as Soviet Premier (23); Ronald Reagan elected U.S. President in a landslide victory over Jimmy Carter (Nov. 5); Trial of 'Gang of Four' begins in Beijing (20); Coup in Upper Volta (25); Kosygin, former Soviet Premier, dies (Dec. 19).

1981: International Year of Disabled Persons begins (Jan. 1); Left-wing guerillas in El Salvador form Govt. in exile (13); US resumes military assistance to junta in El Salvador (15); Fifty-two American hostages fly out of Teheran after 444 days of captivity; Ronald Reagan takes charge as the 40th President of the United States (22); Ancient flag of the Jaffna Tamil Kings unfurled in Jaffna after 400 years; Roy Panther, amateur astronomer, discovers Panther's comet; Polish P.M. Jozef Pinkowski resigns, Gen. Jaruzelski succeeds (Feb. 10); All political parties in Pakistan dissolved (Mar. 24); Reagan shot at, but survives assassin's bullet (31); "Ordinary People" directed by Robert Redford wins Oscar award for the best film (April 1). U.S. Space Shuttle, Columbia, with two astronauts blasts off from Cape Canaveral (12); U.S. lifts grain embargo against USSR (24); U.S. decides to back Kampuchean rebel forces; (May 3); Socialist Party Chief Francois Mitterrand wins French Presidential election (10); Pope John Paul shot at in Vatican City (13); Pierre Mauroy named French Prime Minister (21); Zia-Ur-Rahman, President of Bangladesh and eight aides assassinated, Emergency proclaimed (30); Sri Lanka proclaims state of emergency (June 4); House of Commons passes Britain's controversial new Nationality Bill (5); Chinese Communist Party Chairman Hua Guofeng is replaced by Hu Yabobang (28). Mrs. Sandra Day O. Connor appointed the first woman judge of the U.S. Supreme

Court (July 7); Belize becomes independent (Sept. 2); TGV, the world's fastest train at 270 km per hour makes inaugural trip from Paris to Lyons (22); Egyptian President Anwar Sadat assassinated by a group of soldiers during military parade in Cairo (Oct. 6); Hosni Mubarak sworn in Egypt's fourth President (14); Socialist forces swept back to power in Greece (19); Cancun summit of 22 Government leaders ends on a note of uncertanity and lack of agreement (24); Antigua and Barbuda become independent (Nov. 1); U San Yu, retired Army General, succeeds U Ne Win as President of Burma (9); Javier Perez de Cueller, 61-year-old former Chief delegate of Peru, elected U.N. Secretary-General to succeed Dr. Kurt Waldheim (Dec. 12); Army takes over in Poland, emergency proclaimed and Solidarity leaders put in jail (13); Israel enacts new law to annex Golan Heights, occupied Syrian territory (14); U.S. President Reagan orders sanctions against Poland (24); Ft. Lt. Jerry Rawlings returns to power in Ghana overthrowing Dr. Limann in a military coup (31).

1982: Egypt and Israel agree on final withdrawal of Israeli forces from Sinai (January 9); U.S. allows passage to Khalistan protagonist Jagjit Singh in spite of India's opposition (Feb. 9); India agrees to give long-term aid to Vietnam (13); Sri Lanka shifts capital to Jayawardenapura (15); Zimbabwe Prime Minister Robert Mugabe sacks Joshua Nkomo, veteran nationalist from cabinet (17). South-South Conference inaugurated in New Delhi—44 nations take part; Julius Nyerere, Tanzanian President, is presented the 1981 Third World Prize in New Delhi (22); Soviet spacecraft Venus-13 lands on Venus (March 1); Charles Haughey becomes Irish Prime Minister (9); National Liberation Council seizes power in Surinam (11); Britain and the Vatican resume full diplomatic relations after four centuries (19); Switzerland decides to join United Nations (23); Lt Gen. H. M. Ershad seizes power in Bangladesh; Coup in Guatemala: Junta led by Gen. Efrain Rios Mont (24): A. F. M. A. Choudhary sworn in as Bangladesh President (27); Polling in El Salvador amidst fighting (28); Argentina occupies Falkland Isles, a British colony in South Atlantic (April 2); British fleet leaves for Flaklands (6); 10,000 feared dead in the eruption of the Chichonal volcano in Mexico (7); India signs deal for the purchase of 40 Mirage-2000s with France; Art Buchwald and John Updike win Pulitzer awards (15); A new constitution for Canada comes into force (April 17); Dr. Mahathir Mohammed scores big win in Malaysian elections (23); Egypt officially gets back Sinai peninsula, 15 years after Israeli occupation (25); Britain recaptures South Georgia island off Falklands; Argentine Commander surrenders (26); Sea Law convention adopted (30); Britain and Argentina accept UN proposals to end hostilities (May 6); U.K. Forces attack Falklands capital; Luis Alberto Monge becomes Costa Rican President (9). A manned Soviet spacecraft docks with orbiting Salyut-7 (15). U.K. troops land on Falklands (21). Iran announces recapture of Iraqi-occupied city of Khorramshahr after 20 months of Gulf war (24). Yasser Arafat, leader of the P.L.O. leaves Beirut (30). Argentina surrenders to Britain in the Falklands (15). PLO agrees to leave Beirut (30). Miguel De La Madrid elected President of Mexico (July 5). U.N. World Assembly on Ageing unanimously adopts 48-point plan of action (Aug. 9). Soviet Union launches into space a woman cosmonaut for a rendezvous with the orbiting space station Salyut 7 (18). P.L.O. pull out from Beirut begins (21). Successful trial run in Japan of a new extra fast remote-controlled train which floats above the line on a magnetic field (Sept. 2). World's highest submarine mountain discovered in the Samoan Airchipelago by Soviet research ship 'Callisto' (12). Lebanon's President-elect Bashir Gemayel (34) is assassinated in a bomb explosion (15). Mass massacre in two Palestinian refugee camps, Chatilla and Sabra, in W. Beirut (18).

Conservative Opposition leader Helmut Kohl is elected Chancellor of W. Germany ousting Helmut Schmidt midterm through a parliamentary vote (Oct. 1). Poland's independent trade union Solidarity is dissolved by an Act of Sejm, the Parliament; U.S. experiences the worst phase of unemployment (10.1 per cent or 11,260,000 people out of work) the highest in 42 years (9). Halley's comet sighted at Mt. Palomar near San Diego for the first time since it last zipped by the Earth in 1910; Soviet President Leonid Brezhnev (75) dies in Moscow (Nov. 10). Lech Walesa, leader of Poland's outlawed Solidarity free trade union, is released after 11 months of internment; Yuri Andropov succeeds Brezhnev as General

Secretary of the Soviet Communist Party; Astronauts of U.S. Space Shuttle Columbia release Canadian satellite fulfilling the first commercial contract to launch satellites (12). Wu Xuequan replaces Huang Hua as Chinese Foreign Minister (19). Yasuhiro Nakasone is elected Japan's Prime Minister (26). Row in the U.N. over who discovered America puts off decision on whether to celebrate 500th anniversary of the arrival of Christopher Columbus in the new world; World Premiere of Sir Richard Attenborough's 'Gandhi' in New Delhi (30). Sixty-one-year-old Barney Clark, given an artificial heart (Dec. 2). China adopts new constitution that replaces Maoist principles (4). China issues two stamps to mark the 40th anniversary of the death of Dr. Dwarakanath Kotnis; Soviet cosmonauts, Anatoly Berezevoi and Valentin Lebedev return to earth after 211 days in space, a new endurance record (10). Thousands of women from 15-km human chain around U.S. Air Force base in Berkshire, U.K. in an anti-nuclear protest (12). The big green gate between the British colony of Gibraltar and Spain is reopened after 13 years (14).

1983: OPEC forced to cut prices as Nigeria cuts oil price (Feb. 21). Bob Hawke, Labour Party leader is Australia's Prime Minister (Mar. 5). Seventh Non-aligned summit opens at New Delhi, Indira Gandhi appeals for reversal of arms race (7). Prime Minister Indira Gandhi and Minister in charge of Family Planning in China, Qian Xiwzhong, win first UN population award (19). Barney Clark, world's first and only recipient of a permanent artifical heart dies (23). Border between Morocco and Algeria re-opened after a seven-year closure (April 5). Vietnam starts partial withdrawal of forces from Kampuchea (May 2). Newly discovered comet streaks to within five million km. of the earth, closer than any other comet in more than 200 years (11). Soviet Union develops very advanced fighter in MIG series, a match to U.S. built F-16 (19). Prime Minister Indira Gandhi addresses UNCTAD in Belgrade (June 8). Three South African freedom fighters hanged in Pretoria (9). British Prime Minister Margaret Thatcher, leading the right wing Tories, returns to power for another five-year team (10). Pioneer 10 explorer leaves Earth's solar system to begin its endless voyage among the stars (13). Li Xiannian (78) elected Head of State by the sixth National People's Congress (China's Parliament) (19). Sheila Cameron, first woman Vicar General in the Church of England (July 7). About 20,000 persons, displaced and rendered homeless following riots in Colombo (27). Sudanese President Mr. Jaafar Nimeri frees all 13,000 inmates in Sudan's jails (30). Members of Sri Lanka's main minority party, the Tamil United Liberation Front (TULF) declares boycott of parliament following new legislation on oath against separation (August 7). Philippines opposition leader Benigno S. Aquino Jr. returns from voluntary exile and is shot and killed when he touches home ground (21). Space Shuttle Challenger takes off from Cape Kennedy with Indian Satellite INSAT-1B abroad for deployment in space (30). South Korean Boeing 747, with 269 persons abroad, shot down by Soviets into Japan sea; Caribbean Islands of St. Kitts and Nevis become the world's newest nation, after gaining independence from Britain (Sept. 19). Julius Nyerere, Tanzanian President, awarded the Nansen Medal, the highest honour of the UN High Commissioner for refugees. Lech Walesa, leader of the outlawed Solidarity Free Trade Union in Poland, awarded the 1983 Nobel Peace Prize (Oct. 3). Willian Golding, British novelist, wins 1983 Nobel prize for literature (7). The former Japanese Prime Minister, Kakuei Tanaka found guilty of taking a 500-million-Yen (Rs. 2.2 crores) bribe from the Lockheed Aircraft Corporation and sentenced to four years in prision and a fine equivalent to the bribe. Prof. Subramanyam Chandrasekhar, India-born American, shares 1983 Nobel Prize for Physics with fellow American Prof. William Fowler (19). United States and a coalition of small Caribbean countries invade Grenada to eject the military junta in power there (25). The Philippines President, Ferdinand Marcos, names the Prime Minister Cesar Virata his successor (31). The Turkish-controlled area of Cyprus declares unilateral independence (Nov. 15). Week-long Commonwealth summit opens in Delhi (23). Queen Elizabeth invests Mother Teresa with the Order of Merit (24). Gen. Hussain Ershad proclaims himself president of Bangladesh (December 11). The ruling Liberal Democratic Party in Japan fails to win majority in Parliament, but forms Government with the help of independents; former Prime Minister Tanaka, convicted on a bribery charge, re-elected from his constituency (19).

GULF WAR COMPLETES SEVEN YEARS

The banks of the Euphrates and the Tigris which were the cradles of ancient civilizations is the scene of one of the bloodiest and longest wars in history. Mesopotamia — the site of glorious cities and Persia — the beacon of progress for centuries are destroying themselves with this war. The desert resounds with the echo of gunfire and the atmosphere is vibrant with human misery. The most gruesome war since World War II — Iran-Iraq war completed seven years on 22nd September. According to a rough estimate 3½ lakhs of Iranians and 2½ lakhs of Iraqis have been killed so far. Still the carnage continues — without a hope of settlement. It is really a war of attrition.

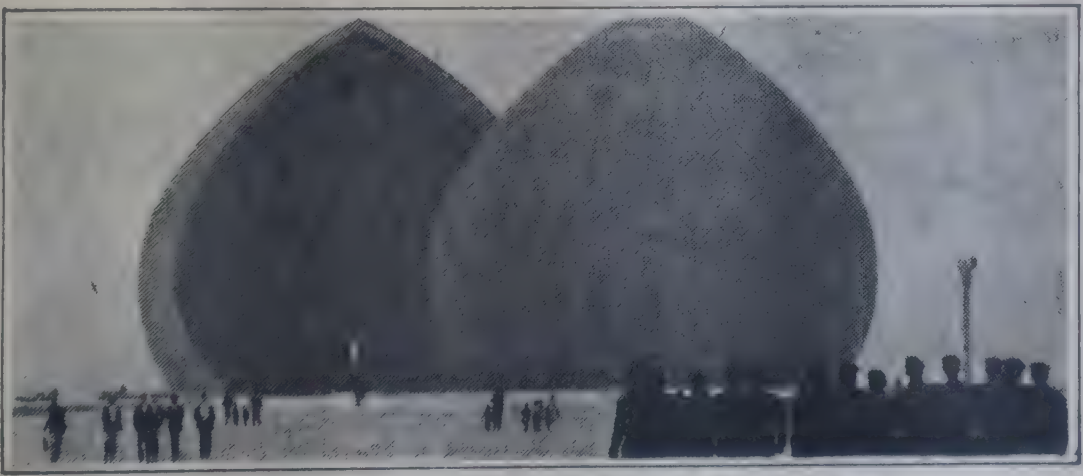
This conflagration is really a clash of wills between 87 year old Ayotollah Rubolla Khomieni of Iran and 53 year-old Sadam Husein of Iraq. All the major powers of the world tried and failed to find a just solution to this conflict. Even the ultimatum of the big two and the call for a ceasefire by the security council have not produced an impact. Six crores of people are merely pawns in a game of power struggle between two individuals.

On the ostensible excuse of an old boundary dispute Iraq bombed Iranian cities on 22nd Sept. 1980. Along with this in a surprise move they captured the port-city of Khorram Sahar. The territory under dispute is the age old waterway — Shatt-al-arab-a swampy area separating the two countries. Iran exercised sovereignty over Shatt-al-arab when Britian was administering this region. When the Shah of Iran abdicated and Khomeini took over Iraq thought it could take advantage of the unsettled conditions in Iran to capture this waterway.

Another reason is religious in character. Both Iran and Iraq have a Shia Muslim majority — while Sadam Husein himself is a Sunni. Khomieni being the undisputed leader of Shia Muslims, Hussain feared that he would incite Iraqi Shias also against him. Iran and the arab world have been traditional rivals and hence the arab countries sided with Iraq. Most of them were wary of Khomieni's Shia fundamentalism.

This war has drained the resources of both countries — oil production in both have fallen drastically — Iraq has a national debt of 35,000 crore dollars and Iran's budget deficit this year is 800 crore dollars.

Still the war goes on causing destruction and human misery.



The memorial for the dead soldiers at Bagdad, Iraq

Yasser Arafat and his supporters sail out of Lebanon, as a result of attacks by the rebel faction of the Palestine Liberation Organisation (20) U.S. notifies withdrawal from UNESCO (28).

1984: U.S. Supreme court rules that the use of video records at home to tape television programmes and movies does not constitute an offence under the federal copyrights law (Jan. 18); U.S. conducts its first test of a missile with the potential to destroy satellites (ASAT) in outer space; Johny Weissmuller (79), five time Olympic swimming champion, dies (22); "Alice in Wonderland" in reality is Queen Victoria's autobiography, concludes a group of researchers after 11 years of study (Feb. 5); Astronauts Bruce McCandless and Robert Stewart walk in space 280 km above the earth to test "Buck Rogers" backpacks in the first free flights through space (7); Soviet President Yuri Andropov dies (10); Konstantin Chernenko becomes new Soviet Communist Party Chief (13); Mikhail Sholokov, (78), Nobel Prize-winning author of "And Quiet Flows the Don", dies (21). Mother Teresa University, Kodaikanal, first Women's University in Tamilnadu, inaugurated by Mother herself (Mar. 2). Mauritius Prime Minister Aneerood Jughnnauth inaugurates the first international conference on Sanskrit at Mahatma Gandhi Institute in Port Louis (15). Squadran leader Rakesh Sharma becomes India's first space-man when he was launched abroad Soyuz T-11 from Baikhnur Cosmodrome in Kazakhstan along with two Russians (April 3). Kerala Government decides to drop Silent Valley Project and declares the entire area a National Park (13). Astronauts on board Space shuttle Challenger successfully retrieves disabled satellite Solar Max, repairs it and deploys it again completing world's first in-orbit retrieval and repair (12). U.S. and China agree on nuclear co-operation (24) Sultan Iskander of Johore sworn in as the eighth King of Malaysia (26). Phu Dorjei conquers Mount Everest without oxygen- a rare feat (May 9). Miss Bachendri Pal becomes the first Indian woman to conquer Mount Everest; Dr. Richard Van Weizasaedear, former Mayor of West Berlin, elected sixth President of W.Germany (23). Indian Army takes control in Punjab to stem terrorist violence (2). Army storms the Golden Temple and other religious places to flush out terrorists, over 325 including Jarnail Singh Bhindranwale killed (6). Vietnam withdraws about 10,000 of its troops stationed in Kampuchea (15). John Turner sworn in as Canada's Prime Minister (30). Farooq Abdullah's Ministry dismissed in Srinagar and G.M. Shah sworn in as Chief Minister (July 2), Golden Temple at Amritsar re-opened to pilgrims (27). Lange's Labour Party sweeps to land slide victory over Robert Muldoon's ruling National Party in New Zealand (14). Laurent Fabious appointed new PM in France (17). R. Venkataraman elected 8th Vice-president of India (22). Brian Mulroney wins general election in Canada; Prime Minister P.W. Botha elected President of S.Africa (5). North and South Koreans open borders for the first time since '45 (30). Unilateral ceasefire by Mizo rebels ordered by Mr. Laldenga (October 2). Indira Gandhi assassinated by 2 of her own security guards at her residence in New Delhi; Rajiv Gandhi sworn in as PM (31). Violence takes a toll of about one thousand in New Delhi following the assassination of Indira Gandhi; Regan re-elected US President with a record margin (Nov.7). Rajiv Gandhi elected Congress (I) President (12). Tamil Nadu Assembly dissolved (15). Andhra Pradesh Assembly dissolved; Rama Rao seeks fresh mandate (22). Bob Hawke wins general election in Australia (Dec.1). 2,500 persons killed due to inhalation of poisonous gas from the Union Carbide Plant of Bhopal; China and Britain sign agreement to transfer Hong Kong to China in 1997 (19). Gen. Zia-Ul-Haq seeks fresh mandate for five years as President (20). Indian Supertanker 'Kanchenjunga' hit in the Gulf by missile (25).

1985: The worst ever year for commercial aviation — around 2,000 killed (Jan. 1). Hun Sen elected Prime Minister of Kampuchea (14). Brazil elects Tancredo Neves to be its first civilian President in 21 years (15). Israeli army begins pullout from Lebanon (20). David Lean's film of E. M. Forster's novel 'A Passage to India' wins 3 Golden Globes at Hollywood (26). Oxford University votes against honorary degree for British Prime Minister Margaret Thatcher (29). Pakistan President Mohammed Zia-ul-Haq dissolves the Cabinet, following the defeat of 6 Ministers in national elections (Feb. 26). British miners end their year-long strike; Earthquake kills more than 20 people in Chile (Mar. 3). Soviet President Konstantin Chernenko dies. Mikhail Gorbachev elected General Secretary of the Communist Party (11). In Geneva the United States and the Soviet Union reopen arms talks after a chilly gap of 15 months (12). International science ex-position opens in Tuskuba, Japan (16). Gen. H. M. Ershad claims a massive mandate to continue as President in a referendum in Bangladesh (21). Gen. Mohammad Zia-Ul-Huq sworn in President and Mohammad Khan Junejo Prime Minister of Pakistan (23). *Amadeus* wins Oscar award for best picture (26). Sudanese president Jaafar Nimeiri overthrown in bloodless coup. Armed forces chief Abdel Rahaman Swareddahab comes to power (April 6). US senator Jake Garn goes into orbit with six others on space shuttle Discovery (12). American climber Richard Bass, 55, becomes the oldest man to reach the summit of Mount Everest (30). Fiftythree spectators killed in a fire at a football stadium in Bradford, England (May 11). Cyclonic storm and tidal waves hit coastal districts of Bangladesh. Thousands perish (24). Italy's Juventus beats England's Liverpool FC 1-0 in the European Cup football final in Brussels after clashes, stampedes and the collapse of a wall in the stands killing 41 persons and injuring about 350 (29).

Alan Garcia elected President of Peru (June 1). Adreas Papandreou re-elected Prime Minister of Greece (2). Mohammad Zia-Ul-Haq becomes the first President of Pakistan to visit Bangladesh (5). Francesco Cossiga elected President of Italy (24).

Andrei Gromyko elected President of the Soviet Union (July 2). Robert Mugabe voted back to power in Zimbabwe (6). West German Boris Becker beats eighth seeded American Kevin Curren 6-3, 6-7, 7-6, 6-4 in the final of the Wimbledon tennis championship to become the first unseeded player to win the title. At 17 he is also the youngest and is in fact younger than the junior champion (7). The Rainbow Warrior, flagship of the ecological group Greenpeace, sinks after a bomb explosion, in Auckland harbour, New Zealand. One crewman is killed (10). Emperor Hirohito becomes the oldest of 124 successive Japanese monarchs, crossing the 30,756 days that the 108th Emperor Gomizunnoo lived (13). World women's conference opens in Nairobi (15). President Abdou Diouf of Senegal elected chairman of the Organisation of African Unity. Dam burst kills 260 in Italy; Johnny, the only creature in the world with a lioness for a mother and a leopard for a father, dies in a zoo in Japan, at the ripe old age of 24 — around 112 years in human terms. He was one of seven "leopons" born since 1959. All the others were dead by 1977 (19).

Telecast Worldwide from London and Philadelphia, the 15 hours *Live Aid* concert, raises millions of dollars for famine relief in Africa (27). Lt. Gen Tito Okello sworn in President of Uganda after Milton Obote was overthrown by rebel soldiers (29). Victor Pas Estenssoro elected President of Bolivia (Aug. 5). 43rd International Eucharistic Congress opens in Nairobi (11). Writer Shiva Naipaul dead (13). Ali Khamanei re-elected President of Iran (19). Samantha Smith, the US school girl who wrote to Soviet President Yuri Andropov about her fears of nuclear war and visited the Soviet Union on his invitation, dies in an air crash in Auburn, USA (26). Maj. Gen. Ibrahim Babangida becomes President in Nigeria (27). Wee Kim Wee elected President of Singapore (30).

A robot submarine from the US navy ship Knorr locates some 800 km south of Newfoundland, the wreck of the Titanic, which hit an iceberg and sank on April 14, 1912, taking 1,513 lives (Sept. 1). Zimbabwe Prime Minister Robert Mugabe elected chairman of the Non-Aligned Movement (8). Olof Palme re-elected Prime Minister of Sweden (16). French Prime Minister Laurent Fabius admits that Govt-commandos sank the Rainbow Warrior (22).

Israeli warplanes bomb the PLO headquarters in Tunis (Oct. 1). Four gunmen, who hijacked the Italian cruise liner Achille Lauro in the Mediterranean and killed crippled Jewish-American passenger Leon Klinghoffer, surrender to Egyptian authorities at Port Said (9). Film maker Orson Welles dies in Los Angeles (11). South Africa hangs black poet Benjamin Moloise, 28, for the murder of a policeman (18). The Commonwealth summit at Nassau in the Bahamas (21). Jose Biro, inventor of the ball-point pen, dead; The Greenpeace protest flotilla fails to stop a French nuclear test at Mururoa Atoll in the South Pacific (24). Three kidnapped Soviet diplomats released in Beirut (30). Ali Hassan Mwinyi succeeds Julius Nyerere as President of Tanzania; Anital Cavaco Silva sworn in Prime Minister of Portugal (Nov. 6). Garri Kasparov beats fellow Soviet Player Anatoly Karpov 13-11 to become the youngest-ever world chess champion (9). Britan signs an agreement with Ireland, which for the first time gives Dublin a say in the affairs of Northern Ireland (15). Reagan and Gorbachev meet in Geneva — the first superpower summit in six years (19). French secret service agents Dominique Prieur and Alain Mahfart sentenced to 10 years in a New Zealand prison for the sinking of the Rainbow Warrior; Ayatollah Hossein Ali Montazeri to succeed Ayatollah Ruhollah Khomeini in Iran (22).

The Guinness Book of Records enters its own name as the biggest selling copyright book (Dec. 6). Vinicio Cerezo elected President of Guatemala (9). Jailed South African leader Nelson Mandela's wife Winnie released in Johannesburg after being arrested and held over night (23) Cartoonist Joseph D. Oriolo, who created "Caspar the friendly ghost", dead (25) Martial law lifted in Pakistan (30).

1986: Sri Lanka Government restores civic rights of the former Prime Minister, Mrs Sirimavo Bandaranaike after more than five years; Pro-government politicians in Bangladesh form a new party called 'Jatiya Party' (Jan. 1). U.S. imposes economic sanctions againt Libya in retaliation to Libya's support for terrorists (7). U.S. Solar system probe 'Voyager 2' discovers six new moons of the planet Uranus, making the total to 12; Pakistan formally adopts Muslim League as the country's ruling party (17). Britain and France decide to build a twin rail tunnel across the channel at a cost of $2.3 billion (19). Martin Luther King, the black leader assassinated in 1969, honoured with a federal holiday on his birthday; Ivan Lendl beats Borris Becker to clinch the $500,000 Nabisco Masters Tennis (20). America's Voyager-2 Space craft finds two more tiny moons of planet Saturn, bringing the total to 15. (23). American Sapce Shuttle, Challenger explodes after 75 seconds of its launching from Cape Canavaral, all the seven on board including the school teacher, Sharon Christa McAuliffe killed. Former Defence Minister and Commander of the rebel National Resistance Army Yoweri Musevini takes over as President of Uganda; Samson Kisekka named Prime Minister (29).

The Nobel Peace Prize winner, Alva Myrdal (84) dies in Stockholm; USSR retains Nehru Gold Cup Football Championship defeating China 1-0 at Trivandrum (Feb. 2). Oscar Arias (45), London-trained economist becomes the youngest Chief Executive of Costa Rica when he swept the Presidential elections; Mother Teresa's Missionaries of Charity opens its first convent in North America in San Francisco (3). Philippines goes to poll to elect New President; Embattled, President-for-life Jean Claude Duvalier (34), flees Haiti (7). Australia wins the Benson and Hedges one day cricket tournament by defeating India (8). Pope John Paul II and the Arch Bishop of Canterbury, Dr. Robert Runcie meet at the Arch Bishop's House, Bombay; Former Prime Minister, Haider Abubaker Al-Attas, 47, named the new President of South Yemen (8). Anatoly Shcharansky, the Soviet human rights activist, is freed during a East-West prisoner swap at Berlin (11). Dr. Mario Soares, elected first Civilian President of Portugal in 60 years; Soviet Union rehabilitates nobel prize-winning novelist, Boris Pasternak (16). Soviet Union launches Mir (Peace), new Space Station, more advanced than the 1982 Salyut-7 (20). Chris Lloyd wins the $1.8 million International Players Tennis Championship (23). In Philippines, Mrs. Corazon Aquino, 53, sworn in as President. Ferdinand Marcos flees into exile. Swedish Prime Minister, Olof Palme, 59, shot dead (25).

Queen Elizabeth II gives formal assent to the Australian Act abolishing all remaining legislative, judicial and executive links of the country with Britain; Deputy Prime Minister Ingvar Carlson takes over as care-taker Prime Minister in Sweden; India clinches Hockey series with Pakistan (3-2) (Mar. 2). Mikhail Gorbachev re-elected General Secretary of the Soviet Communist Party for five years (6). South Africa lifts seven-month old stae of emergency enforced in parts of the country rocked by anti-apartheid violence (8). The Zimbabwe opposition leader, Joshua Nkomo announces rapprochment with his long time foe, Prime Minister, Robert Mugabe in merging their Parties (9). Shuttle Challenger's crew compartment with the remains of the seven astronauts inside found in the Atlantic ocean (10). U.S. rejects six world leaders' plea for halting nuclear tests (11). Ingvar Carlson, Social Democratic Deputy Prime Minister, elected Prime Minister of Sweden (12). Corazon Government in Philippines freezes Marcos's assets; Soviet Space vehicle, Soyuz-T 15 reaches space with two cosmonauts on board—Leonid Kizim and Vladimir Solvyov. Spaniards vote in favour of remaining in NATO (13). Europe's Giotto space probe runs into a

Glasnost and Perestroika, those seemingly tepid streamlets released by Mr. Mikhail Gorbachev in 1985, are rapidly turning into a roaring river.

One is astonished at today's ruthless criticism in the Soviet press of features and institutions once thought to be indigenous to the Soviet system. Nothing seems sacred. The great repository of wisdom, the Communist Party, is challenged on its "infallibility'. Collectivisation of agriculture is denounced as a criminal mistake.

Economic reforms are the centrepiece of Perestroika ("restructuring"). None of the plans will prove their mettle, as Soviet economists acknowledge, in less than five to ten years. Nevertheless, there is no sign of retreat.

Glasnost and Perestroika

The same goes for political and legal reforms. There have been calls for abolishing laws dealing with political offenders and homosexuals, for an end to the abuse of psychiatry, for more independence of trade unions. Many human rights activists have been released. The editor of Glasnost, a journal edited by former political prisoners, was told to apply for registration and financial support from the state.

Economists the world over are keenly watching the Soviet industrial scene, where a variety of 'market socialism' is being introduced and a "package" of banking and financial reforms promised for the benefit of entrepreneurs. Words like profit, capital formation and reinvestable surpluses, hitherto forming part of the capitalist vocabulary are the new 'in' words.

The guidelines issued under perestroika are clear: individual Soviet enterprises must aim at being self-supporting and self-financing; state subsidies are to be cut as units learn to make their own profits, meet their financial commitments to the state and use their own profits for expansion and social programmes.

The Soviet machine-building sector provide an example. From its projected 20.7 billion roubles profit for 1988, it would have to contribute to the state exchequer 9.2 billion roubles (including 4.5 billion roubles' for raw materials and overheads). The balance of 56 per cent (11.6 billion roubles) will remain with the industries for their own expansion, reinvestment or social programmes.

Perestroika for the Soviet industry thus visualises unit-wise profits, capital formation and investible surplus. A network of industrial credit banks throughout the Soviet Union is proposed. Indeed, banking is now visualised in Soviet industry as "a lever to promote profit-motivated performance of industries". "Sick" units may continue depending on state assistance for a while, but the lesson is clear: profit or perish.

A remarkable token of Mr. Gorbachev's earnestness is that by 1988, each of the Soviet government's 22 industrial ministries and their 30 operational agencies are expected to become self-financing and self-supporting. World-wide interest in the way perestroika operates on the Soviet shop-floors has been aroused also because the 30 operational agencies of government account for fully 60 per cent of national industrial production. Like all bureaucracies, the Soviet one may take its time to fulfil high ideals.

wall of dust and damages its Camera as it reaches an estimated 523 km past the nucleus of Halley's Comet. The Soviet Space craft Soyuz T-15 with two cosmonauts on board docks with the orbiting Space Station 'Mir' (14). Swiss voters in a national referendum, overwhelmingly reject their country's entry into the United Nations (16). President Ershad and opposition parties in Bangladesh agree to hold parliamentary elections on May 7 (22); Kenya's John Gugi wins the World Cross country championship at Switzerland; Zola Bud retains the women's title (23). Martina beats Hana Mandlikova to win the Women's Tennis Championship at New York in 4 sets—an unusual happening in Women's Tennis in 85 years (24); US-Libya locked in battle off Sidra Gulf. US Sixth Fleet knocks out Libyan missile launch bases and sinks two of their gun boats. 'Out of Africa' directed by Sydney Pollack wins seven Oscars at the 58th Academy Awards. William Hurt adjudged best actor and Geraldine Page best actress (24). Libya threatens to extend its 'holy war' against the U.S. beyond the Gulf of Sidra by striking at American military bases across the Mediterranean; Corazon Aquino of Philippines abolishes 190 member National Assembly under an interim constitution. Swiss Government freezes all assets belonging to Marcos family (26).

Union Carbide Corporation fined a record $1.38 million (about Rs. 1.7 crore) for 221 safety violations at the multi- national's chemical plant at the Institute in West Virginia, USA (Apr. 2). Barber Conable (63), nominee of United States, elected President of World Bank in place of retiring A.W. Clausen (5). Franc devalued by 58 per cent against the Deutsche Mark (7). USSR retains the Kings Cup Amateur Boxing Championship, India's Jaipal Singh wins the gold in the Super Heavyweight section (9). The U.S. Sixth Fleet reaches within striking range of Libya awaiting commands (13). The Heads of the Governments of India, Argentina, Mexico, Greece, Tanzania & Sweden — constituting the six-nations for continental peace initiative—call for another American-Soviet summit (14). U.S. bombs Tripoli, the capital of Libya; Foreign Ministers of Non–aligned countries condemn American attack and calls for immediate halt to further US military operation (15). Shooting breaks out in Tripoli; UN and NAM condemn US attack on Libya. Libya destroys telecommunication installations in the Italian island of Lampedusa in retaliation; Argentina decides to shift the capital to centrally placed Rio Negro from Buenos Aires (16). Pakistan grabs a sensational last ball victory over India in the final of the inaugural Australasia Cup; 3 Californian journalists who exposed corruption in the Philippines get 'Pulitzer' prize in the 70th year of awards (18). NAM delegates meet Ghaddafi at Tripoli and expresses solidarity with him against US bombing. Australian World Champion Robde Castella becomes the third fastest marathoner in history by winning the 90th Boston Marathon (21). US, Britain and France join in vetoing a non-aligned resolution in the security council condemning US air attack on Libya (22). Botha Government abandons enforcement of Pass laws which for decades restricted the presence of blacks in white areas (23). 18-year old Mswati III became world's youngest ruler when he was crowned King of Swaziland at a ceremony in Mbabane (26). Moscow reports nuclear leak in Chernobyl Power Station; Emperor Hirohito of Japan completes 60 years of rule (29).

Ann Bancroff, 30, of the US becomes the first woman to reach N. Pole (May 2). Norway gets a woman Prime Minister, Gro Harlaus Bruntland, 47; Zeshan Ali (India) becomes the Asian Junior Tennis Champion defeating Chung Tze Ming (Taiwan) at Jakarta (4). Leaders of seven major industrial nations end a three-day summit at Tokyo by pledging new efforts to quell turbulent currency markets (6). Violence mars Bungladesh general elections to choose a 300 member Parliament (7); Britain's House of Commons passes a package deal providing for a new 'British National Overseas' status for Hong Kong's British Dependent Territory citizens numbering 2.5 million (14). South Africa raid on ANC bases in the frontline states of Zambia, Zimbabwe and Botswana (18); Sri Lankan security forces launch major offences in Jaffna, 90 killed; Benazir Bhutto elected co-chairman of Pakistan People's Party (19). Tamil militants launch reprisal raid in Trincomalee Sinhala settlement, killing 30 (25). India win the hocky test series against Malaysia (4-0) (30). Forty nine developing countries sign accord to launch the first round of negotiations on the exchange of trade concessions within the Global System of Trade Preferences (GSTP); An European Ariane-2 rocket carrying a telecommunication satellite blown up in mid-flight by controllers after its third stage failed to ignite (31).

Saudi Arabia devalues its currency by 2.7 per cent, the revised value of the Saudi Riyal being 3.75 dollars instead of 3.65 dollars (June 2). The death toll of Chernobyl nuclear disaster rises to 25 (4). Ramesh Krishnan wins the men's grass court tennis title at Beckham beating Danie Visser (S. Africa) (8). Kurt Waldheim elected President of Austria, amidst controversy that he was an "unrepentant Nazi", Israel recalls envoy in Vienna; The Rogers commission finds that the destruction of Challenger and the death of its seven crew members had a single cause—the failure of seal in the shuttle's booser rocket (9). South Africa declares nation-wide state of emergency just before the 10th anniversary of the 1976 Soweto uprising; The Commonwealth Eminent Persons Group concludes that a negotiated settlement in S. Africa is impossible (12). Poland, Eastern Europe's most debt-ridden country rejoins international Monetary Fund as its 151st member (13). The Head of the Chernobyl nuclear power plant sacked over the April 26th accident, that spread atomic radiation over Europe; India finishes 3rd behind Thailand and Singapore in the International dragon boat race at Singapore (15). Blacks launch nation-wide general strike to commemorate the 10th anniversary of riots in Soweto that galvanised the anti-apartheid struggle (17). Poland, a Charter member, readmitted to World Bank (25). The US Congress ends three years of resistance to military aid for Nicaraguan rebels and votes its approval for a $100 million aid package; Nigerian Oil Minister, Rilwanu Lukman, elected Chairman of OPEC (26). World Court denounces the US backing for Contra rebels trying to topple the leftist Government in Nicaragua (27). Argentina wins the 13th World Cup soccer championship defeating West Germany (3-2) at Mexico City (29).

Zimbabwe announces that it intends to abolish the 20 reserved seats for whites in the 100-seat Parliament; 'Sports Aid' nets $20 million for Africa's aid (July 2). China devalues the renminbi (Yuan) by a record 15.8 per cent against major foreign currencies; The Statue of Liberty officially re-opened to the public by the US First Lady, Mrs. Nancy Reagan; Martina beats Hana to clinch her 7th Wimbledon title and the 5th in succession (5). Boris Becker retains the Wimbledon crown beating top seeded Ivan Lendl (6). India wins rubber in the test series in England (2-0) (8). The Vietnamese Communist Party elects President Truong Chinh, 80, as its leader succeeding Le Duan who died (14). Ian Martin, 39, of Britain appointed Secretary General of Amnesty International; India's Sandya Agarwal hits the highest test score (190) ever by a batswoman in the 3rd Women's Cricket Test at Woster against England (15). USA beats USSR (87-85) to win the World Cup Basketball at Madrid (21). King Hassan II of Morocco resigns as Chairman of the 21-member Arab League as a consequence of adverse Arab reaction to his effort to mend fences with Israel (27).

U.S. President authorises the sale of subsidised wheat to the Soviet Union; Malaysia wins the 30th Merdeka Cup Football defeating Czechoslovakia (3—0); India bows to the Czech in the semifinals (Aug. 3). The National Front coalition government of Prime Minister Dr. Mahathir Mohammed returns to power in Malaysia (4). Barring Britain, Commonwealth Mini Summit in London adopts new sanctions against South Africa (5). South Africa clamps counter sanctions on Frontline states (6). The six nation summit of India, Sweden, Mexico, Tanzania, Argentina and Greece at Ixtapa, Mexico urges nuclear sanity in the international system (8). Dr. Joaquin Balaguer sworn in as the 64th President of the Dominican Republic (10). The US snaps defence ties with New Zealand as a consequence of the latter's refusal to allow nuclear-armed and nuclear-powered US ships entry in their waters (12). 155 Sri Lankan refugees from W. Germany admitted to Canada when they arrive in boats on the shores of New Foundland (14). Olympic Champions USA bags the World Women's Basketball title beating USSR (108-88) (17). India's D.V. Prasad and Jayasree Khadilkar win the Commonwealth Chess Championship (20). Ian Botham breaks the world test-wicket-taking record during the 3rd Test against Newzealand at the Oval. He moves past Lillie's record of 355 by dismissing Bruce Edgar and Jeff Croue (21). Volcanic gas leak kills 1200 in the north-west of Cameroon. Holland retains the World Women's hockey title by defeating Olympic champions West Germany (3-0) (25). 21 blacks killed in clashes with police at Soweto, South Africa (27). West Germany imposes stringent visa restrictions to curb the flow of asylum seekers from third world countries (28). Bhagyasree Sathe becomes the first Indian woman to bag the chess grandmaster title (29).

Eighth Summit of Non Aligned Movement begins in Harare, Zimbabwe. Dr. Robert Mugabe takes over the Chairmanship from Prime Minister, Rajiv Gandhi; Seventyseven die in mid-air plane collission in Los Angeles (Sept. 1). Mother Teresa announces decision to open charity houses in Cuba, South Africa and China (4). Cyprus named venue of NAM Foreign Ministers conference in 1988. Chilean President Augusto Pinochet survives a bid on his life; Archbishop Desmond Tutu enthroned as leader of the 2-million-strong Anglican Church in Southern Africa (8). Amnesty International accuses the Sri Lankan Government of atrocities against the minority Tamil population (9). Moscow agrees to free US newsman, Nicholas Daniloff of the 'US News and World Report', who was arrested on espionage charges; Indonesia devalues Rupiah by 31.2% against the dollar and other major currencies (12). On the eve of the 10th Asiad, bomb explosion kills 5 at Kimpo International airport in Seoul; China retains the World Women's Volleyball championship beating Cuba (14). France clamps visa curbs to counter terrorism—all foreigners except the nationals of the EEC countries and Switzerland will need visas to enter the country (16). Japan announces new measures against South Africa (19). 10th Asiad opens in Seoul; GATT conference at Punta Del Este, Uruguay conceds India's demand that negotiation in services like banking and travel be conducted outside the GATT forum; The 35-nation European Security Conference in Stockholm approves document that will allow the East and West to monitor continuously and inspect all troop movements from the Atlantic to the Urals in the Soviet Union; Ravi Shastri completes 2000 test runs (20). First Test between India and Australia ends up in a 'tie' at Madras. Score: Australia 574-7 declared and 170-5 declared; India 397 and 347 (22). Nigerian currency Naira devalued by 66% (26). Vengsarkar completes 5000 runs in test cricket when he hit 15 in the 2nd innings against Australia at New Delhi (30).

The US Senate overrides President Reagan's veto on sanctions against South Africa (Oct. 3). Garry Kasparov retains his World Chess Championship defeating Anatoly Karpov (12-11) (5). A virgin peak in the Soviet Central Caucasus named after Samantha Smith, the little American 'envoy of peace' (6). India wins the Charminar challenge cup one day cricket series against Australia (3-2) (7). Argentine President Raul Alfonsin was awarded the Council of Europe's human rights prize (10). Reagan and Gorbachev meet in Reykjavik, capital of Iceland for their second summit (11). 1800 die in El Salvador quake; Mother Teresa narrowly escapes from a plane crash in Tanzania; Javier Perez de Cuellar re-elected Secretary General of the United Nations for 5 more years with effect from January 1987 (12). SDI blocks superpower deal at Reykjavik summit of Reagan and Gorbachev; Mr. Stanley Cohen of the US and Italo-American, Ms Rita Levi-Montalcini, Sweden's Karolinska Institute get 1986 Nobel Prize for medicine (13). Survivor of Nazi camp, Mr. Elie Wiesel wins Nobel Peace Prize; Bangladesh goes to polls to elect a Civilian President (14). The Soviet Union starts pulling out its troops from Afghanistan; Three share Nobel Prize for Physics, Chemistry Prize also for three; Taiwan's ruling Kuomintong (KMT) announces the end of 37 years of martial law to pave the way for setting up new political parties. Martina registers her 1000th win in international tennis when she defeated Natalie Tanzlat of France (15); Lt. Gen. H.M. Ershad, 56, voted 10th President of Bangladesh but the third to be elected directly (16). Sunil Gavaskar hits his 33rd test century (103) at Bombay in the 3rd test against Australia (17); Australia beats England (2-1) and claims the 6th World Cup Hockey at London; India finishes 12th and last. The Belgian Hernio Nelisten and Firmin Thierie win the 7th Himalayan Car Rally (27); US President Ronald Reagan signs executive order implementing economic sanction ordered by the US Congress against S. Africa (28); Ahmed Zaki Yamani relieved from the post of Saudi Oil Minister. He is replaced by Planning Minister, Hisham Nazes (30); Indo-Chinese revolutionary Prince Souphanouvong steps down as President of Laos (31).

Ramesh Krishnan becomes the first Asian to win the Hongkong Seiko Super Tennis Tourney (Nov2); The US appoint Edward Perkins as the first black Ambassador to South Africa; Mr. Joaquin Chissano, Foreign Minister, elected President of Mozambique, to succeed Samora Machel (3); Democrats wrest control of the US Senate from the Republicans in the biennial elections (4); 'Washington Post' reports that Pakistan detonated a nuclear-device, between September 18 and 21, the second of a series conducted by them in 1986 (5); President Ershad withdraws Bangladesh's 4-5 year of military rule (10); The West German Parliament adopts measures to limit the number of foreigners to be given assylum (13); USA wins the team title in the World Senior Powerlifting Championship at Prague. India's P.J. Joseph wins a silver in the 56 kg category (15); SAARC Summit at Bangalore decides to set up permanent secretariat at Kathmandu; India elected new Chairman (17); The Soviet Parliament adopts legislation that allows private enterprise on a small scale (19); In Philippines, President Corazon Aquino removes her potent rival Juan Ponie Enrile from the post of Defence Minister (23); Martina wins the $ one-million Women's Tennis at Madison Square Garden (24); President Reagan declares that a profit of about $10 million to $30 million made from a shipment of arms to Iran had been illegally siphoned off to finance the guerilla war of the 'Contras' in Nicaragua; Reagan fires National Security Advisor John Poindexter; France confirms it has perfected a neutron bomb that kills humans but does not destroy property; Police foils assasination attempt on Pope John Paul II in Brisbane, Australia (25); King Fahd of Saudi Arabia and Amir of Bahrain, Sheikh Isa Bin Sulman al Khalifa jointly open the 20 km long Saudi—Bahrain causeway (26); Philippines President, Corazon Aquino wins another round when her government signed a cease-fire agreement with the communist insurgents towards ending a 17-year old guerilla war (27); A B-52 bomber carrying 12 nuclear-tipped cruise missiles enters service with the US Airforce, raising the total of cruise-carrying bombers and multiple-warhead missiles above the ceiling of 1320 set out in the 1979 SALT-2 agreement (28).

UAE decides to levy fee on priave schools (Dece. 2); U.S. Congress decides to conduct Watergate style probe into the Iran arms deal (5); The Liberation Tigers of Tamil Eelam in Sri Lanka announces 'elimination' of 20 members of the rival Eelam People's Revolutionary Liberation Front; Two Kurds held for the murder of Swedish Prime Minister Olof Palme (14); UK deports 'Jammu Kashmir Liberation Front' Chairman Amanullah Khan; An experimental air-craft, Voyager, takes off from Edwards Air Force Base, California on an unprecedented attempt to circle the earth without stopping or refuelling; The opposition National Alliance for Reconstruction wins a landslide Election victory in Trinad and Tobago ending a 30-year rule by People's National Movement; Karachi rocked by clashes between rival Muslim communities, more than 150 killed (15); Top leaders quit in Vietnam to pave way for youngsters (17).

INDEPENDENT NATIONS

USSR with 22.4 million sq km is the biggest independent state in the world while China with 1,051,551,000 people becomes the biggest state in respect of population. Vatican City has the distinction of being the smallest state in respect of area (44 hectares) and population (about 1000 people).

The brief description of states given below deal primarily with location, area, population, currency, history and economy. Population figures have been updated with reference to the latest world population chart of UNFPA. Currency rates, though of 1987, are subject to heavy fluctuations as evident from the fledgling economies of some newly independent countries.

Biggest States

In Area

State	Area (sq km)	Location
U.S.S.R.	22,402,200	Europe-Asia
Canada	9,976,139	N. America
China	9,596,961	Asia
U.S.A.	9,363,130	N. America
Brazil	8,511,965	S. America
Australia	7,682,300	S. Pacific
India	3,280,483	Asia
Argentina	2,776,889	S. America
Sudan	2,505,813	Africa
Algeria	2,381,741	N. Africa

In Population

China	1,051,551,000	Asia
India	746,742,000	Asia
USSR	275,761,000	Europe-Asia
USA	235,681,000	N. America
Indonesia	162,167,000	Asia
Brazil	132,648,000	S. America
Japan	119,492,000	Asia
Bangladesh	98,464,000	Asia
Pakistan	98,971,000	Asia
Nigeria	92,037,000	Africa

Smallest States

In Area

State	Area (sq km)	Location
Vatican City	0.44	Europe
Monaco	1.95	Europe
Nauru	22.00	S. Pacific
Tuvalu	26.00	S. Pacific
San Marino	61.00	Europe
Liechtenstein	157.00	Europe
Maldives	298.00	Indian Ocean
Malta	316.00	Mediterranean
Grenada	344.00	Caribbean
St. Vincent	220.00	Caribbean
In Population		
Vatican City	1,000	Europe
Tuvalu	7,349	S. Pacific
Nauru	8,421	S. Pacific
San Marino	21,622	Europe
Liechtestein	26,512	Europe
Monaco	27,063	Europe
Andorra	41,627	Europe
Kiribati	60,302	S. Pacific
Seychells	64,718	Indian Ocean
Dominica	6,300,000	Caribbean

AFGHANISTAN

Cap: Kabul; **Area:** 647,497 sq km; **Pop.** 14,292,000. **Lang:** Pakhto (Pushtu), Dari, Persian; **Rel:** Islam; **Currency:** Afghani, AFS. 50=US $1.

Afghanistan, a land-locked republic in Central Asia. Known originally as Ariana, then as Khorasan (the land of the Rising Sun), Afghanistan was formed as a separate state by Ahmed Shah Durrani in A.D. 1747. Pro-Soviet Govt. since Dec. 1979 when Soviet troops occupied the country.

Agriculture remains the mainstay of the economy. Sheep-rearing is another main occupation and the chief exports are livestock, fruits, wool and skins. The chief minerals are coal, salt, natural gas, petroleum, iron and copper.

President, Revolutionary Council: Dr. Nijibullah.

Mission in India: Emabssy of Afghanistan, Shanti Path, Chanakyapuri, New Delhi-110 021. Tel: 603331.

ALBANIA

Cap: Tirana; **Area:** 27,748 sq km; **Pop:** 29,85,000; **Lang:** Albanian; **Rel:** officially abolished; **Currency:** Lek; $1=9.33 leks.

Albania lies on the west coast of the Balkan peninsula in south-east Europe. Albania was first established as an independent state in 1912. Communist Government.

More than 40 per cent of the land is farm-land producing wheat, maize, sugar beet cotton and tobacco and supporting a heavy livestock population mainly sheep and goats The important minerals are coal, oil, chrome copper and nickel. Industries include cotton textiles, woollen fabrics, leather goods, petrol cement, sugar, beer and cigarettes.

Head of state: Ramiz Alia, **P.M:** Adi Carcani.

ALGERIA

Cap: Algiers: **Area:** 2,381,741 sq km **Pop** 21272000. **Lang:** Arabic and French; **Rel** Islam; **Currency:** Dinar; $1=5.27 DA.

Algeria is an independent republic in North Africa and extends for 640 miles along the shores of the Mediterranean. The plains lying along the coast are very fertile. The Atla Mountains reaching to altitudes of some 700 ft. split the country into two. Algeria becam an independent republic on July 3, 1962.

Agricultural products include wheat, barley potatoes, artichokes, flax and tobacco. Fruit like dates, pomegranates and figs grow i abundance. Wine and olive oil are also produced. Cattle raising, however, is the mos important occupation. Important minerals ar iron, zinc, mercury, copper, antimony, phosphates and petroleum.

President: Chadli Benjedid, **P.M:** Abdu Hamid Brahimi.

Mission in India: Embassy of the Democratic and Popular Republic of Algeria, 15, Anan

Lok, New Delhi- 110 049. Tel: 655216.

ANDORRA

Cap: Andorre-la-Vieille; **Area:** 464 sq km; **Pop:** 41627. **Lang:** Catalan; **Rel:** Christian; **Currency:** French franc, Peseta (Spain).

The principality of Andorra, founded in 1278, lies in the valleys of Eastern Pyrenees, between France and Spain, about half-way between Barcelona and Toulouse.

Andorra has no proper constitution and its international status is dubious. It is nominally subject to the suzerainty of France and the Bishop of Urgel in Spain.

The government is carried on by a council of 28 elected members.

Andorra is an agricultural country, cereals, potatoes and tobacco being the principal crops. Iron, lead, alum, stone and timber are the principal products, though tourism is the main source of income.

Head of Govt: Josef Pintat Solaus. **First Syndic:** Francesc Cerqueda- Pascuet.

ANGOLA

Cap: Luanda; **Area:** 1,246,699 sq km; **Pop:** 8,540,000; **Lang:** Portuguese, Bantu; **Rel:** Tribal and Christian; **Currency:** Kwanza; $1=29.92 Kwanza.

Angola, formerly Portuguese West Africa, became an independent state in 1975.

The important food crops are millet, maize and cassava. The main cash crops are coffee, cotton, oil palm and sisal. Industries comprise textiles, brewing, cement, oil refining and sugar. Angola is famous for its gemstones and produces about one-tenth of the total world supply. The main exports are crude petroleum, coffee, diamonds, iron ore, fish, sisal and timber.

President: Jose Eduardo dos Santos.

ANTIGUA & BARBUDA

Cap: St. John's; **Area:** 280 sq km; **Pop:** 79,000; **Lang:** English and Patois: **Rel:** Christian; **Currency:** Eastern Caribbean $.US $1=EC$2.70.

Antigua, one of the islands of British West Indies, is politically linked to two islands Barbuda and Redonda. Redonda is uninhabited. Antigua and Barbuda became independent on Nov. 1,1981.

The population is of mixed European Negro origin. The economy is agricultural. Sugar and sea island cotton are the main exports. Tourism is a major source of income.

Governor-General: Sir Wilfred Ebenezer Jacobs. **P.M:** Vere C. Bird.

ARGENTINA

Cap: Buenos Aires; **Area:** 2,766,889 sq km; **Pop:** 30094000; **Lang:** Spanish; **Rel:** Christian; **Currency:** Pesos. $1=253.3 Pesos.

Argentina lies at the tip of South America

Capital Craze

Argentina will have a new capital in place of the 106-year old Buenos Aires. *It will be built in Patagonia, on the Negro river, almost 1,000 km south of the present capital.*

President Raul Alfonsin *favours the new site, in the relative wilderness of Patagonia, because 'it will shake Argentina out of its decade-long slump and trigger a new frontier, pioneering dynamics.' The opposition Peronists favour a new site in the north-west provinces.*

Argentina has huge foreign debts totalling $ 50 billion and sceptics wonder where money for the $ 3.2 billion project, spread over 4,620 sq km, about ten km east of Viedma, is to come from.

The capital Buenos Aires with its ten million people dominates the national scene, epitomising its culture, running its economy and setting the political agenda.

India's own history also provides instances like Tughlak's disastrous decision to shift the capital from Delhi *to* Daulatabad, *and Akbar's equally infructuous bid to shift his capital from* Agra *to Fatehpur Sikri. Often, the reasons are political and administrative, as when the British moved the capital in 1911 from* Calcutta *to* New Delhi.

They may also be strategic, as when Pakistan chose to build Islamabad, *rather than opt for* Karachi *or* Lahore.

Sometimes the clamour and claims of major cities lead to a new choice as in the case of Australia's Canberra *or Canada's* Ottawa.

extending for some 2300 miles from Bolivia to Cape Horn. Its maximum width is 930 miles. The highest peak in the Americas, *Aconcagua,* is in Argentina. Argentina became an independent republic in 1810.

Argentina abounds in deposits of coal, lead, copper, zinc, gold, silver and sulphur. Petroleum is also found. Meat packing is the chief industry, with flour milling coming second. Agriculture and animal husbandry form important segments of the economy.

President: Dr. Raul Alfonsin.

Mission in India: Embassy of the Argentine Republic, B-8/9, Vasant Vihar, Paschimi Marg, New Delhi- 110 057. Tel: 671345.

AUSTRALIA

Cap: Canberra. **Area:** 7,682,300 sq km; **Pop:** 15,751,500; **Lang:** English; **Rel:** Christian; **Currency:** Dollar. US$1=1.39 Dollars.

Australia is the world's largest island and a continent washed on its western shoreline by the Indian Ocean and on its east coast by the Coral and Tasman Seas of the South Pacific Ocean.

It has a unique assortment of flora and fauna not found elsewhere in the world. The number of aborigines living in Australia is about 1,60,000. About half the aborigines live in cities or towns. They participate at all levels of life of the Australian community. Many aborigines still live in the remote areas of Australia and prefer traditional tribal oriented lifestyles. The boomerang was invented by the aborigines who have lived in Australia for more than 40,000 years.

Australia is a multicultural society. Four out of 10 Australians are first or second generation migrants. One in five of the population is overseas born. In the past most migrants came from Europe, but now, under Australia's non-discriminatory immigration policy, they come from well over 100 countries. One of the most sparsely populated nations, it is also one of the most highly urbanised with 85 per cent of the population living in cities. Vast areas of the continent receive only very small amounts of rainfall limiting development mainly to the coastal fringes.

Australia is a Federation with power divided broadly between the national Government and six State governments. The powers of the Australian Parliament are laid down in a written constitution which came into force on January 1, 1901, when the colonies federated to form the Commonwealth of Australia. The states are New South Wales, Victoria, Queensland, South Australia, Western Australia and Tasmania.

State Capitals: Sydney, Melbourne, Brisbane, Adelaide, Perth and Hobart.

In March 1986, Queen Elizabeth II signed the Proclamation of the Australia Act 1986, which severed Australia's last remaining constitutional links with Britain. Queen Elizabeth is formally Queen of Australia.

During the 20th century Australia has developed into a modern industrial nation built upon the solid foundation of an efficient and productive agricultural system and large reserves of minerals. Australia is now an important producer and exporter of a wide range of agricultural products especially wool, wheat and meat and its mines provide minerals and metals of many types for use by local and overseas industries, including coal, iron-ore, bauxite, gold, silver, lead, zinc, copper nickel, oil and natural gas.

Australia celebrates its Bicentenary in 1988 to mark the 200th anniversary of European settlement. Australia Day is celebrated on January 26.

Head of State: Governor-General, Sir Ninian Stephen. **PM:** Mr. R. J. L. (Bob) Hawke.

Mission in India: High Commission of Australia, 1/50-G, Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 601336.

AUSTRIA

Cap: Vienna; **Area:** 83,853 sq km **Pop:** 74,89,000; **Lang:** German; **Rel:** Christian; **Currency:** $1 = 16.56 Schilling.

A republic in Central Europe since 1918, Austria regained full sovereignty after World War II in 1955. Over 65 per cent of the country is mountainous.

Economy depends mainly on mining and manufacturing, trade and services. Austria has iron ore and oil deposits, lignite, magnesite, lead and some copper. Austrian capital houses UN organisations like UNIDO and IAEA and international bodies like OPEC. Tourism is highly developed.

President: Dr. Kurt Waldheim. **Chancellor:** Dr. Franz Vranitzky.

Mission in India. Embassy of Austria, EP-13, Chandragupt Marg, Chanakyapuri, New Delhi-

110 021. Tel: 601112.

Consulate: 96/1, Sarat Bose Road, Calcutta-26. Tel: 47-2795.

Kothari Building, Nungambakkam High Road, Madras-600 034.

THE BAHAMAS

Cap: Nassau; **Area:** 13,939 sq km.; **Pop:** 2,28,000; **Lang:** English; **Rel:** Christian; **Currency:** Bahamian **$**, **$**1.05 = £1 Sterling.

The Commonwealth of the Bahamas is an archipelago lying off the south-east coast of Florida. The Bahamas consists of more than 700 islands and 2000 cays and rocks. Only about 30 of the islands are inhabited. The largest island is *Andros* but *New Providence* is the most populous. The capital *Nassau* is situated on this island. Eighty-five per cent of the population is *Negro,* the rest are *Europeans.*

The Bahamas became internally self-governing in 1964 and fully independent in 1973.

Education is free and compulsory between the ages of 5 and 14.

Tourism is the main industry. Fishing constitutes the main occupation. Vegetables and fruits are also grown.

Governor-General: Sir Gerald Cash. **P.M:** Lynden O. Pindling.

BAHRAIN

Cap: Manama; **Area:** 669 sq km., **Pop:** 384,221; **Lang:** Arabic and English; **Rel:** Islam; **Currency:** Dinar, 0.37600 Dinar = US **$** 1.

Bahrain, which became an independent state on Aug. 15, 1971, is an Arab state comprising 33 small islands in the Arabian Gulf. Bahrain is the biggest of the islands and has lent its name to the whole archipelago. It is an independent monarchy.

The traditional occupations of cattle breeding, agriculture and fishing are still practised but many modern industries have also come up. Oil accounts for the lion's share of the state revenues.

The people enjoy a very high standard of life. Education is free upto the secondary level and heavily subsidised with scholarships at higher levels.

Amir: Shaikh Isa bin Sulman Al Khalifa. **P.M.:** Shaikh Khalifa bin Sulman Al-Khalifa.

BANGLADESH

Cap: Dhaka; **Area:** 143,998 sq km.; **Pop:** 98,100,000; **Lang:** Bengali and English; **Rel.** Islam; **Currency:** Taka. **$**1 = 30.30 TK.

Bangladesh is bounded on three sides by India. Burma lies to the south-east and constitutes the only non-Indian boundary. Bangladesh became an independent state in 1971.

The economy is primarily agricultural. Rice is the most important food crop. Bangladesh is the biggest producer of jute in the world, commanding 80 per cent of the world's total production. Industrially, Bangladesh is backward. Textiles, sugar, jute, tea, paper, fertiliser, natural gas, power generation, steel, garments, tobacco, rubber, chemicals and machineries comprise the bulk of industrial production.

President: Lt. Gen. Hossan Mohammad Ershad. **P.M.:** Mizanur Rahman Chowdhury.

Mission in India: 1. High Commission of Bangladesh, 56-Ring Road, Lajpat Nagar-III, New Delhi-110 024. Tel: 615668. 2. Deputy High Commission of Bangladesh, 9, Circus Avenue, Park Circus, Calcutta-7. Tel: 44-5208. 3. Bangladesh Visa Office, Agartala, Tripura.

BARBADOS

Cap: Bridgetown; **Area:** 430 sq km; **Pop:** 262,000; **Lang:** English; **Rel:** Christian; **Currency:** Barbados dollar (BD). US **$**1 = BD **$**2.01.

The island of Barbados is the most easterly of the Caribbean islands, lying about 250 miles north east of the mainland of South America. It is included in the Windward Isles. Barbados became fully self-governing within the Commonwealth on Nov. 30, 1966.

Agriculture and tourism dominate the economy of Barbados. Sugar, molasses and rum account for 90 per cent of exports.

Head of State: Queen Elizabeth II. **Governor-General:** Sir Hugh Springer. **P.M.:** Erskine Sandiford.

BELGIUM

Cap: Brussels; **Area:** 30,521 sq km; **Pop:** 9,858,000; **Lang:** Dutch and French; **Rel:** Christian; **Currency:** Belgian Franc. **$**1 = ±48 BF.

Belgium, named after the Belgae, people of ancient Gaul who crossed the Rhine about the

6th century B.C., has had a turbulent history. It became an independent monarchy in 1830. During both the world wars it was occupied by Germany but freed itself by the end of those wars.

Belgium is the most densely populated country in Europe. Although it is essentially a manufacturing country, agriculture and forestry are also very important. The main crops are oats, rye, wheat, potatoes, barley and sugar beets. Coal is the country's only important mineral. Principal industries are steel and metal products, textiles, glass, fertilizer, sugar, heavy chemicals etc. Antwerp is the world's 4th largest port and also the world's biggest diamond-trading centre.

Head of State: King Baudouin. **P.M.:** Dr. Wilfried Martens.

Mission in India: Embassy of Belgium, 50-N, Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 608295.

Consulate: 5/1A, Hungerford St., Calcutta-17. Tel: 44-3886.

BELIZE

Cap: Belmopan; **Area:** 22,965 sq km **Pop:** 157,700; **Lang:** English; **Rel:** Christian; **Currency:** Dollar. US $ 1 = B$2.

Belize, formerly known as British Honduras, is a Central American republic with the Caribbean to the east, Mexico to the north-west and Guatemala to the south-west. Originally a British colony, it was granted autonomy in 1964 and became independent in 1981. The name Belize was adopted in 1973. The original capital Belize City was laid waste by a hurricane in 1961. The capital was shifted to Belmopan, an inland town, in 1970.

More than half the population is made up of the so-called Creoles or English-speaking Negroes, found mostly in the coastal regions. The indigenous (Red) Indian population consists of Mayans and Kekchis who live mostly in the reservations.

Forest products especially timber form a major export item. Sugar and citrus fruits form the major products. Wild life includes the curious creature mantee—an amphibian mammal—and several varieties of reptiles.

Gov. Gen.: Dame Elmira Minita Gordon. **P.M.:** Manuel Amadeo Esqivel.

BENIN

Cap: Porto Novo; **Area:** 112,622 sq km; **Pop:** 3,890,000; **Lang:** French and Tribal dialects; **Rel:** Tribal and Islam; **Currency:** Franc CFA. 1 French Franc = 50 Franc CFA.

The People's Republic of Benin (formerly Dahomey) is located north of the Gulf of Guinea in West Africa. It is bounded by Togo, Burkina Faso, Niger and Nigeria.

Formerly, one of the provinces of French West Africa, Benin became an independent state on Aug. 1, 1960. The country has been plagued by coups and counter-coups.

Benin's principal products are palm oil, kernels, peanuts, cotton, coffee and tobacco.

President: Brig-Gen. Ahmed Kerekou. **Pres. of National Exe. Council:** Brig.-Gen. Ahmed Mathieu Kerekou.

BERMUDA

Cap: Hamilton; **Area:** 53.3 sq km; **Pop:** 54,893; **Lang:** English; **Rel:** Christian; **Currency:** Bermuda dollar. US $ 1 = 1 B$.

Bermuda is a group of some 300 coral islands in the Western North-Atlantic. They are said to have been discovered by a Spaniard Juan de Bermudez in 1650. In 1968 it was given the status of a British Associate state with full internal autonomy.

Negroes make up two-thirds of the population. Persons of British or Portuguese stock form the rest.

The chief crops are vegetables, flowers (Easter lilies specially), bananas and citrus fruits. Tourism is the main source of revenue.

Gov. Viscount Dunrossil. **Premier:** John W. D. Swan.

BHUTAN

Cap: Thimphu; **Area:** 47,000 sq km; **Pop:** 1,388,000; **Lang:** Dzongkha and Nepali; **Rel:** Buddhism and Hinduism; **Currency:** Ngultrum. Indian Rupee also is legal tender.

Bhutan is a mountain state in the Himalayas, with China on the north and India on the south. It is an absolute monarchy.

Agriculture is the chief occupation. The principal products are rice, corn, and millet and forest produce like wax, lac, musk, etc. Timber and fruits are exported.

King: Jigme Singye Wangchuck.

Mission in India: Royal Bhutanese Embassy, Chandragupta Marg, Chanakyapuri, New Delhi-110 021. Tel: 609217.

BOLIVIA

Cap: La Paz; **Area:** 1,098,581 sq km; **Pop:** 6,200,000; **Lang:** Spanish; **Rel:** Christian; **Currency:** Peso boliviano. ($b). US $1 = $b 45,000.

Bolivia, a South American state, lies astride the Andes. Lake Titicaca on the Peru-Bolivian border is the highest lake in the world (12,506 ft.).

Originally part of the ancient Inca Empire, Bolivia became independent in 1825. Bolivia has been named after Simon Bolivar, the famous South American fighter for freedom. Bolivia, like most Latin American states, has had a number of coups and counter-coups.

Agriculture, the mainstay of the country, engages 70 per cent of the people. Tin mining is the most important industry. Bolivia produces about 30,000 tons of tin, nearly 15 per cent of the world's total output. Antimony and tungsten are the next most important minerals.

President: Victor Paz Estenssoro.

Mission in India: Consulate of Bolivia, 20, Loudon St., Calcutta-700 016. Tel: 443283.

BOTSWANA

Cap: Gaborone; **Area:** 600,327 sq km; **Pop:** 1,042,000; **Lang:** English and Tswana; **Rel:** Tribal and Christian; **Currency:** Pula. US $1 = P 1.867.

The Republic of Botswana (formerly known as Bechuanaland) is located in Southern Africa, and is bounded by South Africa in the south and east, Namibia in the west and Zimbabwe in the north east. Botswana became independent in Sept. 1966 and assumed its present name.

Cattle industry is the most important economic activity. Beef is the main export. Diamonds, manganese, asbestos, coal, copper and nickel are leading mineral resources.

President: Dr. Quett Ketumile Joni Masire.

BRAZIL

Cap: Brasilia; **Area:** 8,511,965 sq km; **Pop:** 132,648,000; **Lang:** Portuguese; **Rel:** Christian: **Currency:** Cruzados (CZ $) 1 US $ = 13.77 CZ $.

Brazil, the largest South American state both in area and population, lies more or less in the centre of South America. The bulk of Brazil lies in the tropics. It is a land of dense forests and mighty rivers. The Amazon and the Sao Francisco cover the north of the country.

More than half of Brazil's population now live in the cities, which are responsible for generating about 35 per cent of the GNP. Among the most important cities are: *Sao Paulo, Rio de Janeiro, Belo Horizonte, Recife, Salvador and Brasilia.* Brasilia, a showpiece of modern architecture and town planning, was declared the capital on April 21, .1960.

Brazil's main industries are concentrated at Sao Paulo—shipbuilding, motor cars, textiles, foodstuffs, metals and chemicals. Brazil is the world's largest producer of coffee, bananas, manioc and sugar cane and the second biggest producer of oranges, maize and cocoa.

The major exports of Brazil are soya beans, sugar, coffee, iron ore, cocoa beans, maize, sisal and tobacco.

Brazil possesses vast deposits of mineral wealth—iron, phosphates, uranium, manganese, copper, coal, platinum and gold. Oil is a state monopoly. The wax which is used for phonograph records and insulation is a monopoly product of the state.

President: Jose Sarney.

Mission in India: Embassy of Brazil, N-90, Panchshila Park, New Delhi-110 017. Tel: 6436791.

BRUNEI

Cap: Bander Seri Begawan; **Area:** 5765 sq km: **Pop:** 214,440; **Lang:** Malay, Chinese; **Rel:** Islam; **Currency:** Brunei Dollar with the par value of 0.290299 gram of gold.

The Sultanate of Brunei on the northern side of the island of Borneo lies between two Malaysian territories, Sabah and Sarawak. Brunei Malays, mostly Muslim, form more than half of the population. The Sultanate, once a powerful and independent kingdom, was annexed by Britain who in 1971 granted it full internal autonomy.

Oil and natural gas are Brunei's most valuable resources. Much of Brunei's oil comes from the offshore Ampa field. Rice is the chief food crop. Other crops are coconuts, sago and rubber. Rubber is an export item.

Sultan: Hassanal Bolkiah.

BULGARIA

Cap: Sofia; **Area:** 110,912 sq km; **Pop:** 8,942,000; **Lang:** Bulgarian; **Rel:** Christian; **Currency:** Lev. US $ 1 = 0.999 leva.

Bulgaria in south-east Europe was founded in 681 and became a socialist republic on 9 September, 1944.

The principal crops are wheat, rye, barley, maize, sugarbeet, oats, corn, potatoes and tobacco. Coal, iron ore, copper, lead and zinc are the main mineral resources.

President of the State Council and Secretary-General of the Communist Party Toder Zhivkov. Chairman, Council of Ministers: George Atanassov.

Mission in India: Embassy of the People's Republic of Bulgaria, E.P. 16/7, Chandragupta Marg, Chanakyapuri, New Delhi-110 021. Tel: 607411.

BURMA

Cap: Rangoon; **Area:** 676,552 sq km; **Pop:** 38,513,000; **Lang:** Burmese and Tribal; **Rel:** Buddhism; **Currency:** Kyat. US $1 = K. 7.31.

Originally a part of British India, Burma became a separate unit of the British Commonwealth in April 1937. It became an independent country on January 4, 1948.

Burma is known as the "rice bowl of the Far East". The chief minerals are petroleum, lead, tin, zinc, tungsten, copper, antimony, silver and gems. The rubies, sapphires and jade found in Burma are especially famous. Teakwood is exported on a large scale.

President: San Yu. **P.M.:** U Maung Maung Kha.

Mission in India: Embassy of Burma, Plot No. 3, Block No. 50/F, Nyaya Marg, Chanakyapuri, New Delhi-110 021. Tel: 600251.

BURKINA FASO

Cap: Ouagadougou; **Area:** 274,200 sq km; **Pop:** 6,768,000; **Lang:** French and native languages; **Rel:** Tribal and Islam; **Currency:** Franc CFA. US $ 1 = 512 Franc CFA.

The Republic of Burkina Faso is a landlocked state in West Africa surrounded by Mali, Niger, Benin, Togo, Ghana and Ivory Coast.

Demonetisation in Burma

Burma invalidated its top value banknotes in September 1987 in a surprise move which official sources said was aimed at black-marketeers and counterfeit notes being used by anti-Government rebels to buy supplies.

A snap Government announcement said the 75-kyat note would no longer be legal tender. The Government said it was also demonetising the 35 and 25 kyat notes, which have already been withdrawn from circulation.

The only notes still in circulation are the 10, five and one-kyat bills.

In November 1985, Burma took a similar step demonetising 100, 50 and 20 kyat notes.

The measure ignited wide-spread protests and rioting all over Burma.

Formerly a province of French West Africa called *Upper Volta* the country gained full independence in 1960. Name changed to Burkina Faso in 1984.

It is almost exclusively an agricultural country with 80 per cent of the population dependent on agriculture. Livestock raising is highly developed. Principal crops are sorghum, millet, yams, cotton, rice, peanuts and karite. Industry is limited to local handicrafts.

Head of State and Govt: Capt. Blaise Compaore

Mission in India: Consulate General, 186 Sarat Bose Road, Calcutta-700 029. Tel: 46-1164.

BURUNDI

Cap: Bujumbura; **Area:** 27,834 sq km; **Pop:** 4,503,000; **Lang:** French and Kirundi; **Rel:** Tribal and Christian; **Currency:** Burundi Franc. US $ 1 = 128.3 BF.

The Republic of Burundi is a small state in Eastern Africa.

Burundi attained independence on July 1, 1962. Prior to independence, it formed part of the Belgian-administered UN Trust Territory of Rwanda-Urundi.

The population consists of *Hutu* or *Babutu* tribesmen, *Tutsi* or *Watutsi* people and *Twa* or *Batwa pygmies*. The economy is entirely agricultural, manioc and sweet potato, being the important food crops and coffee the major cash crop.
Chairman, Military Council: Maj. Pierre Buyoya.

CAMEROON

Cap: Yaounde; **Area:** 475,442 sq km; **Pop:** 9,467,000; **Lang:** French and English; **Rel:** Tribal and Christian; **Currency:** Franc CFA. French franc 1 = 50 franc CFA.

Cameroon, originally part of the German colony in West Africa, became a republic in 1960. In 1961, British Cameroon was federated with Cameroon, forming the Federal Republic of Cameroon.

Cameroon has a central government and two provincial governments—East Cameroon and West Cameroon.

Cameroon is mainly an agricultural country raising cocoa, palm oil, coffee, rubber, groundnuts, bananas, and cotton. East Cameroon is industrially developed, aluminium and chemicals being the main industries.

President: Paul Biya. **P.M.:** Bello Bonda Maigari.

CANADA

Cap: Ottawa; **Area:** 9,976,139 sq km; **Pop:** 25,302,000; **Lang:** English & French; **Rel:** Christian; **Currency:** Dollar. US $ 1 = Canadian $ 1.39.

Canada is the second largest country in the world. It occupies all of the northern-most part of N. America except Alaska in the west and the small French islands of St. Pierre & Miquelon. Twenty-seven per cent of the population speak French and the rest English.

Canada is a federation comprising 10 provinces and 2 territories. The federal capital is at Ottawa. It is a member of the Commonwealth. By the historic 'Canada Act of 1982' Britain transferred constitutional powers to Canada.

The provinces with more than a million population are Ontario (8), Quebec (6), British Columbia (2), Alberta and Manitoba (1).

Provinces	Capital	Area (sq km)
Alberta	Edmonton	644,390
British Columbia	Victoria	929,730
Manitoba	Winnipeg	548,360
New Brunswick	Fredericton	72,090
Newfoundland	St. John's	371,690
Nova Scotia	Halifax	52,840
Ontario	Toronto	891,190
Prince Edward Island	Charlottetown	5,600
Ouebec	Quebec	1,356,790
Saskatchewan	Regina	570,700
Territories		
Yukon Territory	Whitehorse	478,970
Northwest Territories	Yellowknife	3,293,020

From a primarily agricultural country famous for logging, fishing and fur, Canada has transformed itself into one of the leading industrial countries of the world. Automobile parts head the export list, followed by wood pulp and timber. Wheat is still a major item of export. Canada's industrial structure has been built up mainly by foreign investments especially USA.

Canada is today the world's largest producer of asbestos, silver, nickel, and zinc. It is rich in many other minerals, iron, copper, uranium, cobalt, sulphur, lead and gold. It has vast reserves of oil and natural gas. Though Canada is only ninth in the world in crude oil production it is Canada's biggest dollar earning mineral.

Head of State: Queen Elizabeth II. **Gov. Gen.** Jeanne Sauve. **P.M.:** Brian Mulroney.

Mission in India: High Commission of Canada, 7/8 Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 608161.

CAPE VERDE

Cap: Praia; **Area:** 4033 sq km; **Pop:** 296,093; **Lang:** Portuguese; **Rel:** Christian; **Currency:** Escudo Caboverdianos. US $ 1 = 89.27.

Cape Verde, formerly a Portuguese colony, lies in the Atlantic Ocean, off West Africa. It consists of 10 islands and 5 islets divided into two groups, Windward and Leeward. The soil is poor and cultivation very little. Food is a major item of import. Salt, fish, coffee and groundnuts are exported. Cape Verde became independent on July 5, 1975.

When the Portuguese discovered the island, it was uninhabited. Portuguese settlers and the Negroes they brought in to work their plantations, form the basic stock of the present population.

President: Aristides Maria Pereira. **P.M:** Maj. Pedro Verona Rodirigues Pires.

CEN. AFRICAN REPUBLIC

Cap: Bangui; **Area:** 622,984 sq km; **Pop:** 2,508,000; **Lang:** French and Sangho; **Rel:** Christian and Tribal; **Currency:** Franc CFA. French franc 1 = 50 franc CFA.

The Central African Republic lies in the heart of equatorial Africa. It became self-governing in 1958, and fully independent in 1960, as a member state of the French Community. In 1966 Col. Jean Bedel Bokasa, Chief of Staff of the Army, ousted President David Dacko and seized control of the government.

Bokasa was made President for life in 1972. In 1976, he set himself up an emperor, after the Napoleonic pattern. In 1979 a popular uprising drove out this two-bit Napoleon. Interestingly enough, it was Bokasa's own predecessor in office, viz. David Dacko, who overthrew the self-styled Emperor in a bloodless coup on Sept. 20, 1979.

Principal agricultural products are cotton and coffee. Cotton leads in exports. Diamonds account for half the country's export earnings. Uranium mining is becoming increasingly important.

Head of State and Govt. Gen. Andre Kollingba.

CHAD

Cap: Fort-Lamy; **Area:** 1,284,000 sq km; **Pop:** 4,901,000; **Lang:** French and Arabic; **Rel:** Islam and Tribal; **Currency:** Franc CFA. French f 1 = 50 CFA.

The Republic of Chad was a province of French Equatorial Africa. It became independent on August 11, 1960.

The country's economy is entirely rural and based on agriculture and animal husbandry. Cotton and meat are the main exports. Cattle, sheep & camels are raised.

President: Hissene Habre.

CHILE

Cap: Santiago; **Area:** 756,626 sq km; **Pop:** 11,878,000; **Lang:** Spanish; **Rel:** Christianity; **Currency:** Peso. US $ 1 = 200 Pesos.

The Republic of Chile lies on the Western seaboard of South America, occupying the strip of land between Peru and Bolivia in the north to Cape Horn in the south.

Originally a Spanish colony, Chile became independent on September 18, 1810. First South American country to elect a Marxist Govt. (1970) which fell in a military coup in 1973.

Though wheat and other cereals are cultivated, Chile has to import about one-third of its food. It is the world's largest producer and the largest exporter of copper. There are important deposits of nitrate, gold, silver, lithium, molybdenum and iron ore. Oil production provides about half the oil required by the country. Exports marine products and fruits.

President: Gen. Augusto Pinochet Ugarte.

Mission in India: Embassy of Chile, 1/13 Shantiniketan, New Delhi-110 021. Tel: 671363.

CHINA

Cap: Beijing (Peking); **Area:** 9,561,000 sq km; **Pop:** 1,051,551,000; **Lang:** Chinese (Mandarin); **Rel:** Buddhism and Taoism; **Currency:** Yuan. US $ 1 = 2.53 Yuan.

The most populous country in the world and the third largest in area, China is made up of 21 provinces, 5 autonomous regions and three municipalities—Peking, Shanghai and Tientsin.

One of the oldest countries in the world, China became a republic in 1911. The People's Republic of China was proclaimed in Peking on October 1, 1949.

On Oct. 26, 1971 China was admitted a member of the UN displacing Nationalist China (Taiwan).

China is essentially an agricultural country. The main crops are rice, other grains, tea, tobacco, sugarcane, jute, soya, groundnut and hemp. The main forest products are teak and ting oil. Among the principal industries are cotton and woollen mills, iron, leather and electrical equipments. The chief minerals are coal, manganese, iron ore, gold, copper, lead, zinc, silver, tungsten, mercury, antimony and tin. Petroleum industry is steadily growing.

China: the Bike Explosion

At the morning rush hour, they form a softly whirring kaleidoscope of pumping legs and spinning wheels, blurs of color as riders wear the bright new clothes of post-Maoist times. Eddies form on the side roads, then merge into vast rivers of movement filling major streets.

The bike flood of the '70s has been transformed into a deluge in the '80s. Shanghai's cycle census has soared from 1.7 to 4.2 million. Beijing has doubled its cycle count from 3 to 6 million. Both cities are adding 500,000 cycles a year. Millions of additional bikes crowd country roads.

The prosperity generated by the celebrated economic reforms under Deng Xiaoping has put extra change in people's pockets. The popular Phoenix, Everlasting and Flying Pigeon brands, which cost the equivalent of about $60, are one of the first consumer wishes in a country in which per capita income is a few hundred dollars a year.

For many Chinese, bus riding is a distant second best. The fares are dirt cheap but the buses are crammed, and often hot and stuffy. One Shanghai bus route carries 200,000 people a day.

The people, animals and assorted cargos that the Chinese pile onto bicycles defy the imagination. Wives, babies, girlfriends, grannies, hat racks, huge loads of hay, stacks of furniture swaying precariously from side to side — almost anybody and everything gets balanced on the handlebars or behind the rider.

The biggest problem surrounding China's bicycles is how to mix them with the modest but briskly rising numbers of buses, trucks, business and state cars.

The most lethal combination appears to be motorcycle and bicycle. Motorcycles are as out of place in a Chinese street of tinkling bicycle bells as a bulldozer in a tea garden. Shanghai already has 10,000 motorcycles, and while officials claim that they are applying stiff controls, they are permitting about 1,000 more a year.

One has to ask: Is China's dependence on the bicycle really backward? Consider, by contrast, the fume-filled, chaotic streets of Bangkok, Cairo or Mexico City. And think of the future, when world petroleum supplies are finally exhausted. Others may be scrambling to imitate the two-wheeled Chinese example

(Excerpts from an article by Neal R. Pierce in the Washington Post.)

China is a nuclear power well advanced in space technology. It launched its first earth satellite in April, 1970.

Party Chief: Zhao Ziyang. **Premier:** Li Peng.

Mission in India: Embassy of China, 50-D Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 600328.

COLOMBIA

Cap: Bogota; **Area:** 1,138,400 sq km; **Pop:** 28,110,000; **Lang:** Spanish; **Rel:** Christian; **Currency:** Pesos. US $ 1 = Pesos.

The Republic of Colombia, situated in the north west of South America, extends up to the Isthmus of Panama. *Bogota,* the capital founded in 1538, is situated in the Andes, 8600 ft above sea level.

Colombia was once a part of the South American Spanish Empire. In 1819, Simon Bolivar defeated decisively the Spanish forces breaking the hold of Spain. Bolivar's plan to unite New Granada with Venezuela and Ecuador in the Greater Colombia Confederation was fulfilled by the Congress of Angostura (1819), lasting until 1830.

Colombia's main produce is coffee, which accounts for 61.2 per cent of the country's exports. Other products are bananas, fresh flowers, cotton fibre, sugar, rice, tobacco, maize and wheat. The country is the world's leading producer of emeralds and is a substantial producer of platinum and gold. It holds the largest coal reserves in Latin America, rich nickel deposits and natural gas fields.

Industries include textiles, beverages, food products, chemicals and non-metallic minerals.

President: Virgiloo Barco Vargas.

Mission in India: Embassy of Colombia, 82-D, Gr. Fl., Malcha Marg, Chanakyapuri, New Delhi-110 021. Tel: 3012771.

THE COMOROS

Cap: Moroni; **Area:** 2274 sq km; **Pop:** 443,000 **Lang:** Arabic and Comoran; **Rel:** Islam and Christian; **Currency:** Franc CFA. French F1 = 50 F CFA.

The Comoro Islands, formerly a French Overseas Territory, lie at the northern end of the Mozambique Channel, between Africa and Madagascar. The archipelago consists of 4 islands—*Grande-Comoroe, Anjouan, Mayotte* and *Mobeli*—and a number of islets and coral reefs. The main islands are volcanic and Grande-Comoroe, the largest island, is dominated by Mount Karthala (2361 m), an active volcano. The islands are densely forested.

The population is a mixture of various strains—Arabs, Africans, Malagasys, Persians, Indians, Indonesians and Europeans. African and Arab influences are strongest. A purely European population of around 1500 completes the scene. Grande-Comoroe is the most populous island and has as capital and principal town, *Moroni.* Agriculture is the mainstay of the economy..

President: Ahmed Abdullah Abderemane, **P.M:** Ali Mroudjae.

CONGO

Cap: Brazzaville; **Area:** 342,000; sq km; **Pop:** 1,695,000; **Lang:** French and Lingala; **Rel:** Tribal and Christian; **Currency:** Franc CFA. French F 1 = 50 F CFA.

Formerly part of the French Equatorial Africa, the Republic of Congo became autonomous within the French Community in 1958 and fully independent in Aug. 1960. In 1969 a new constitution was promulgated.

Main exports are timber, diamonds, palm oil, crude petroleum, sugar and groundnuts

President: Denis Sassou N'Guesso; **P.M.:** Ange-Edouard Poungui.

COSTA RICA

Cap: San Jose; **Area:** 51,100 sq km; **Pop:** 2,534,000; **Lang;** Spanish; **Rel:** Christian; **Currency:** Colone (C) US$ 1 = C 48.20.

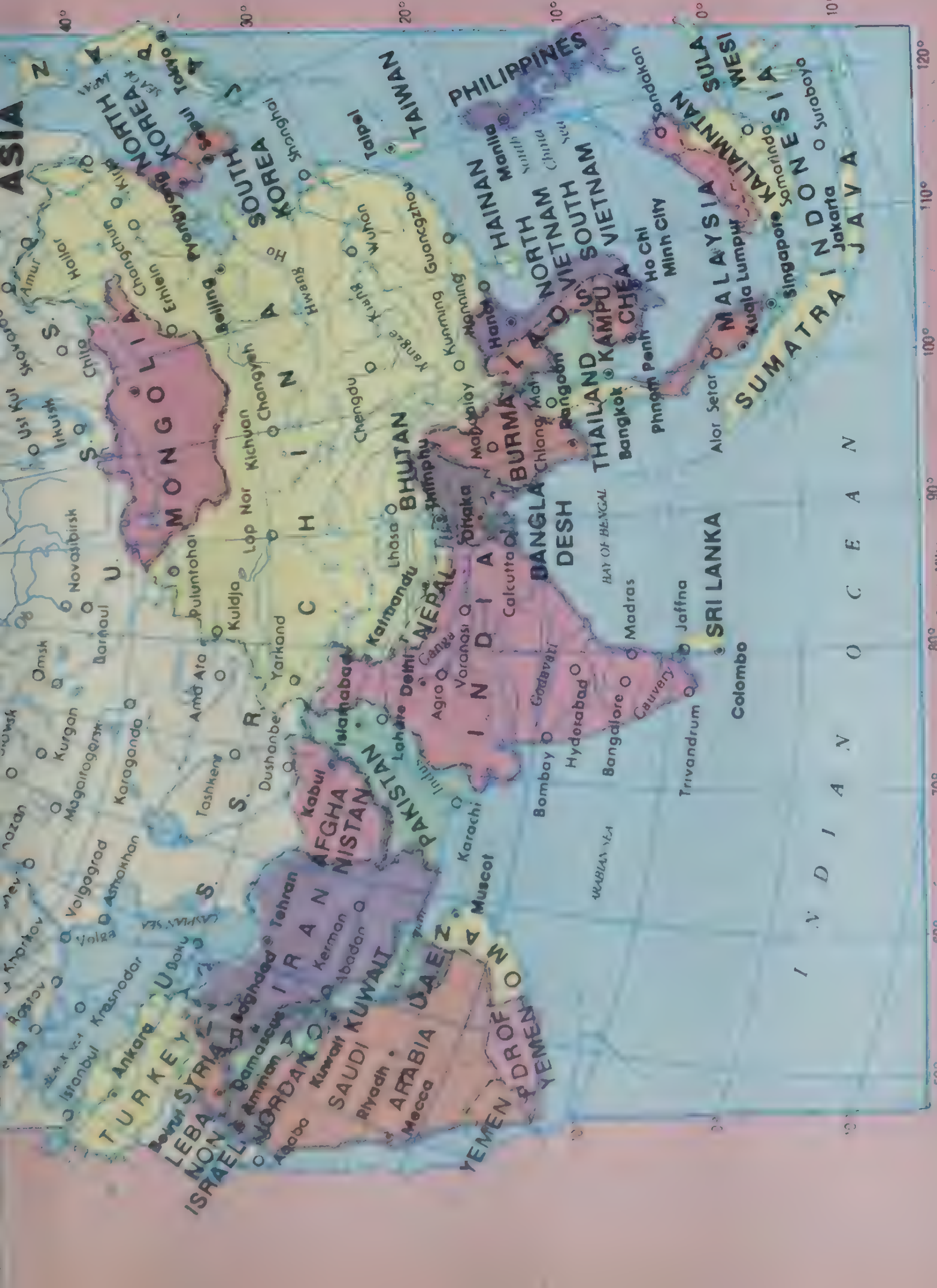
The Republic of Costa Rica is a Central American state. It lies between Nicaragua and Panama.

For nearly three centuries Costa Rica formed part of the Spanish American dominion. In 1821 it became independent.

The country is mainly agricultural. Coffee is the most important product, accounting for about half the exports. Bananas, cocoa, cattle and recently sugar are the other items of export.

President: Oscar Arias.

COUNTRIES AND CONTINENTS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BURMA
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BHUTAN
NEPAL
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OMAN
P.D.R. OF YEMEN
YEMEN
JORDAN
SYRIA
LEBANON
ISRAEL
TURKEY
MALAYSIA
INDONESIA
SUMATRA
JAVA
KALIMANTAN
SULAWESI
INDIAN OCEAN
ARABIAN SEA
BAY OF BENGAL
South China Sea
CASPIAN SEA
BLACK SEA
Tokyo
Seoul
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Bangkok
Phnom Penh
Ho Chi Minh City
Kuala Lumpur
Singapore
Jakarta
Surabaya
Samarinda
Sandakan
Alor Setar
Dhaka
Calcutta
Thimphu
Lhasa
Katmandu
Delhi
Agra
Varanasi
Bombay
Hyderabad
Bangalore
Madras
Trivandrum
Jaffna
Colombo
Karachi
Lahore
Islamabad
Kabul
Tehran
Kerman
Abadan
Baghdad
Kuwait
Riyadh
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Volgograd
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Kurgan
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The territorial waters of India extend into the sea to a distance of twelve nautical miles measured from the appropriate base line.

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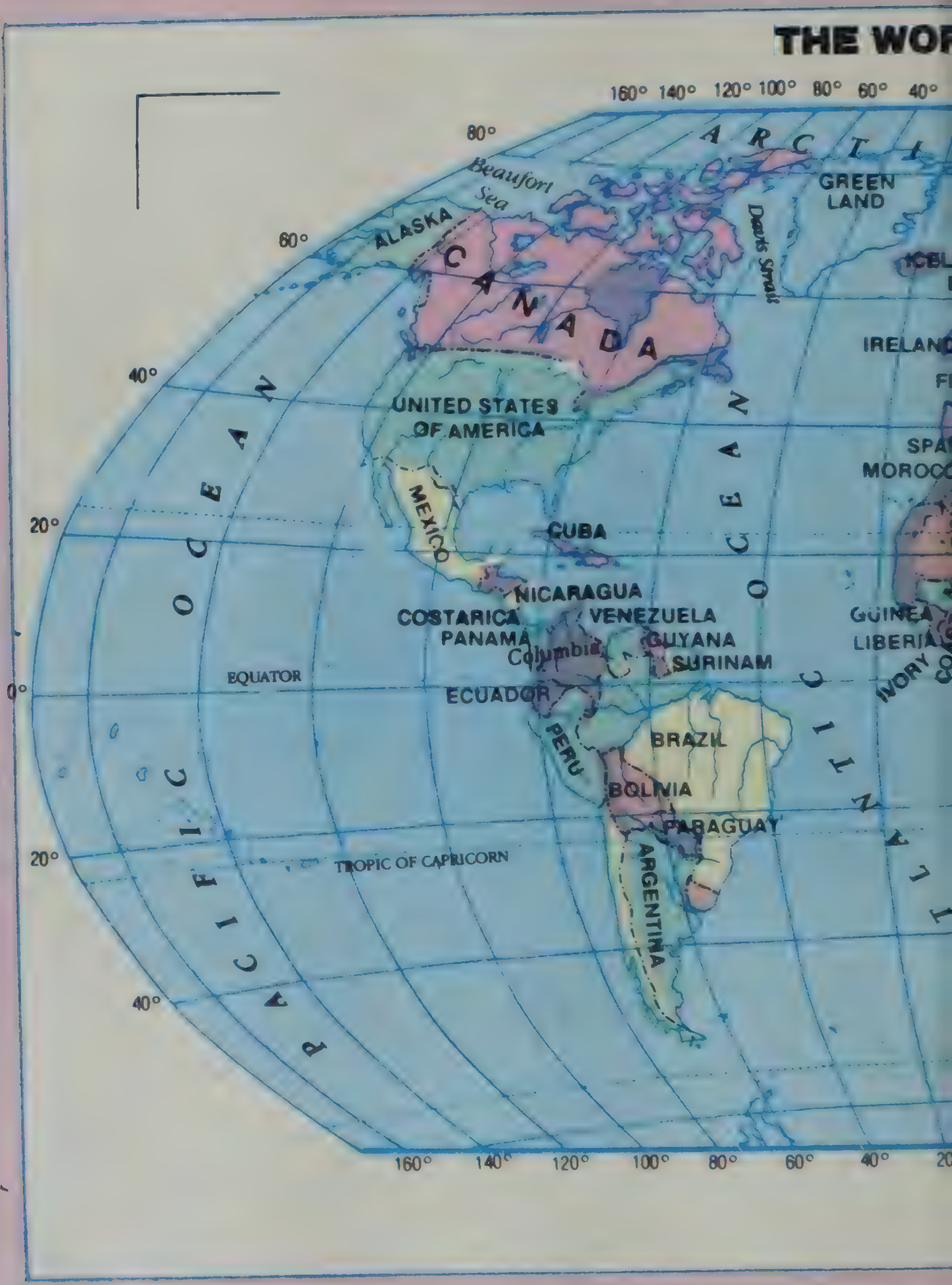
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GUYANA
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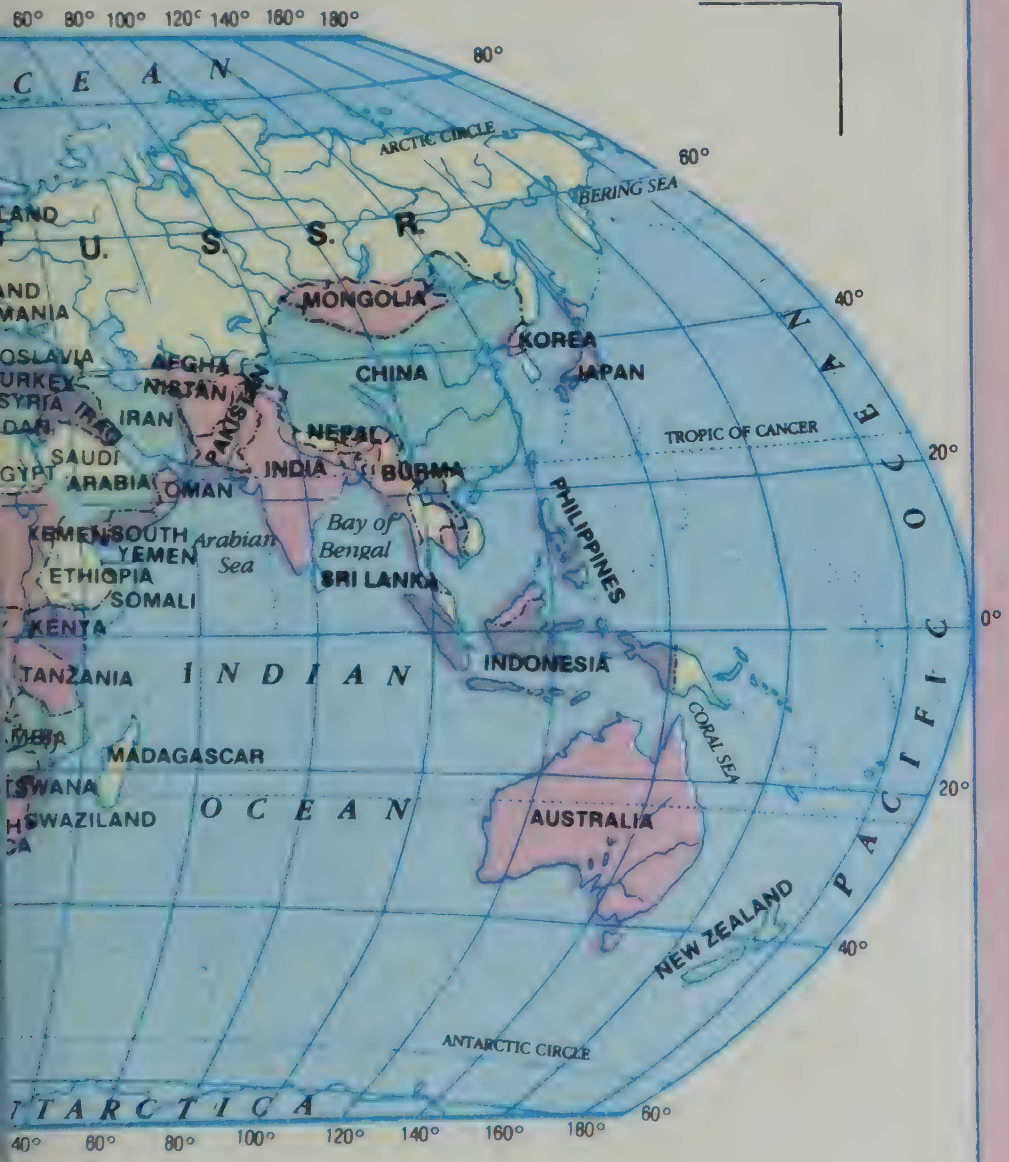
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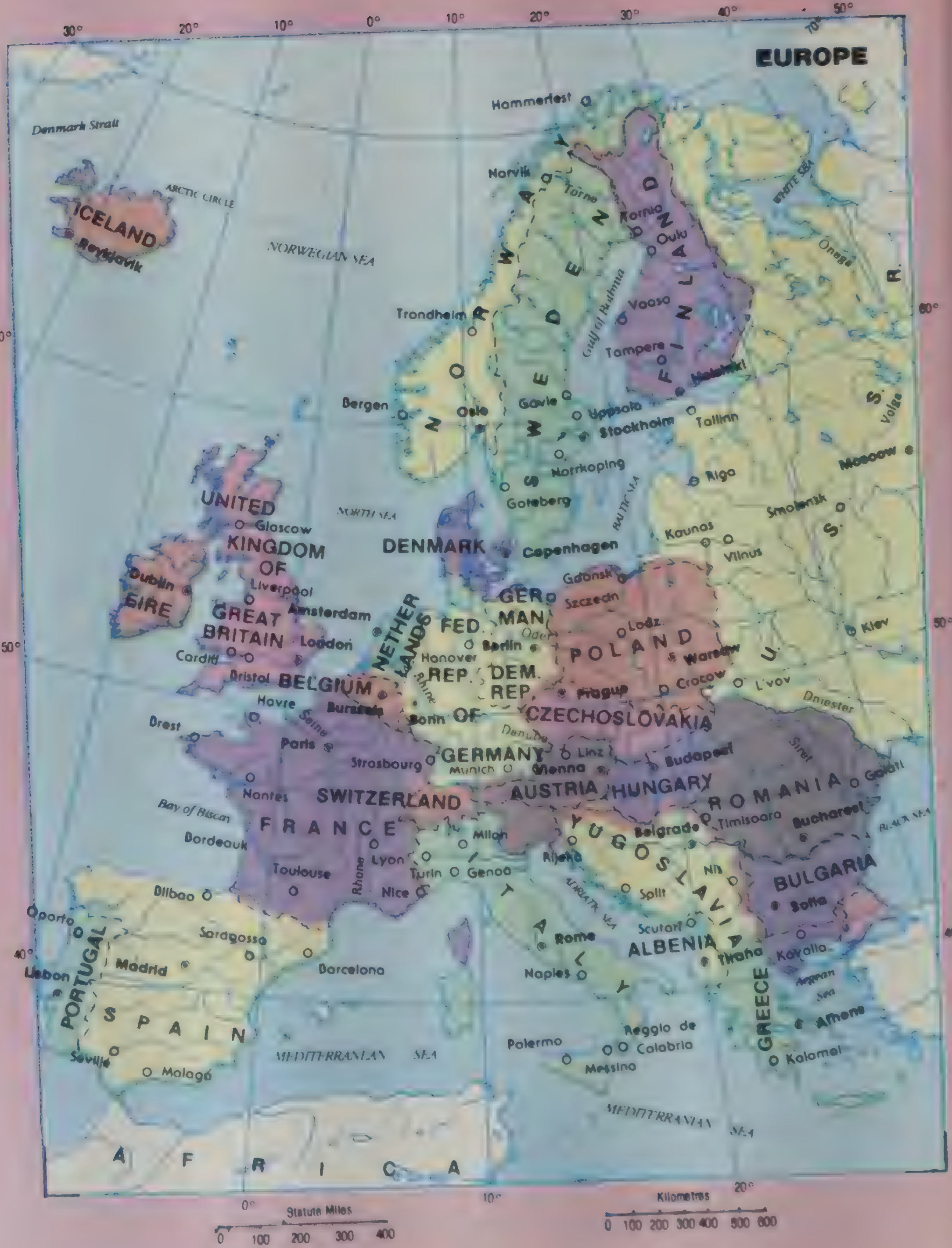EUROPE
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SWEDEN
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Stockholm
Tallinn
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Goteberg
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NORTH SEA
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Danube
Linz
Munich
Vienna
Budapest
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HUNGARY
Siret
ROMANIA
Galati
Timisoara
Bucharest
BLACK SEA
BELGIUM
Brussels
Havre
Seine
Brest
Paris
Strasbourg
Nantes
SWITZERLAND
Bay of Biscay
FRANCE
Bordeaux
Toulouse
Lyon
Rhone
Nice
Milan
Turin
Genoa
ITALY
Rijeka
ADRIATIC SEA
YUGOSLAVIA
Belgrade
Nis
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Scutari
ALBENIA
Tirana
BULGARIA
Sofia
Kavalla
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GREECE
Athens
Kalamai
Rome
Naples
Palermo
Messina
Reggio de Calabria
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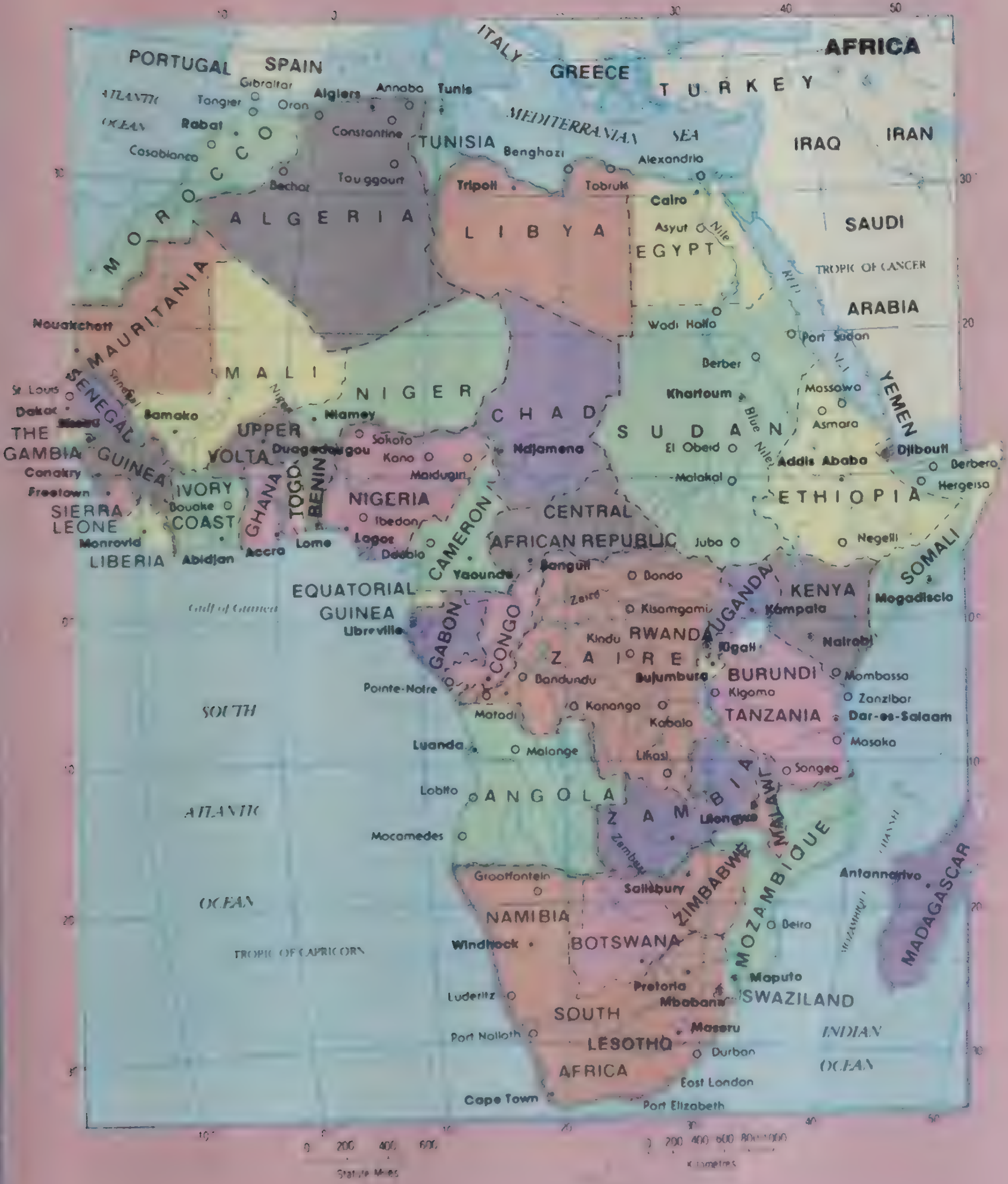
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ALGERIA
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Asyut
Nile
EGYPT
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Nouakchott
MAURITANIA
MALI
Berber
YEMEN
Senegal
Niger
St. Louis
Dakar
SENEGAL
THE GAMBIA
Bamako
NIGER
CHAD
Khartoum
Massawa
Asmara
Niamey
UPPER VOLTA
Ouagadougou
Sokoto
Kano
Maiduguri
Ndjamena
SUDAN
Blue Nile
El Obeid
Addis Ababa
Djibouti
Berbera
Hergeisa
GUINEA
Conakry
Freetown
SIERRA LEONE
IVORY COAST
Bouake
GHANA
TOGO
BENIN
NIGERIA
Ibadan
CAMEROON
CENTRAL AFRICAN REPUBLIC
Malakal
ETHIOPIA
Monrovia
LIBERIA
Abidjan
Accra
Lome
Lagos
Douala
Yaounde
Bangui
Juba
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SOMALI
EQUATORIAL GUINEA
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CONGO
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UGANDA
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KENYA
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Matadi
Kananga
Kigoma
Zanzibar
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ZAMBIA
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MOZAMBIQUE
Grootfontein
Salisbury
ZIMBABWE
Antananarivo
MADAGASCAR
Mozambique Channel
NAMIBIA
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Pretoria
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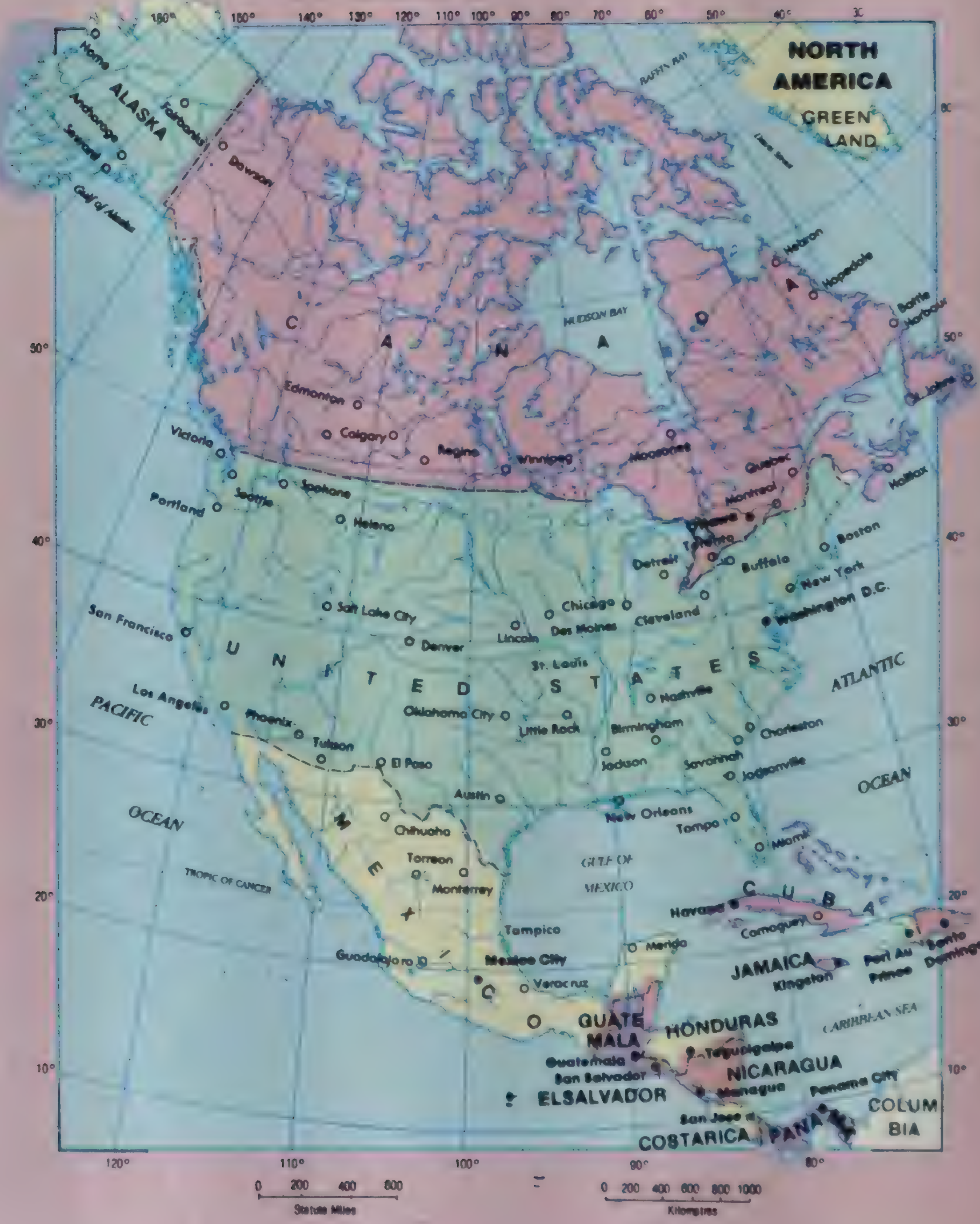
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Edmonton
Calgary
Regina
Winnipeg
Moosonee
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Montreal
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St. Johns
Battle Harbour
Hopedale
Hebron
Victoria
Seattle
Spokane
Portland
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M E X I C O
Chihuahua
Torreon
Monterrey
Tampico
Guadalajara
Mexico City
Veracruz
Merida
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JAMAICA
Kingston
Port Au Prince
Santo Domingo
CARIBBEAN SEA
GUATEMALA
Guatemala
HONDURAS
Tegucigalpa
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ELSALVADOR
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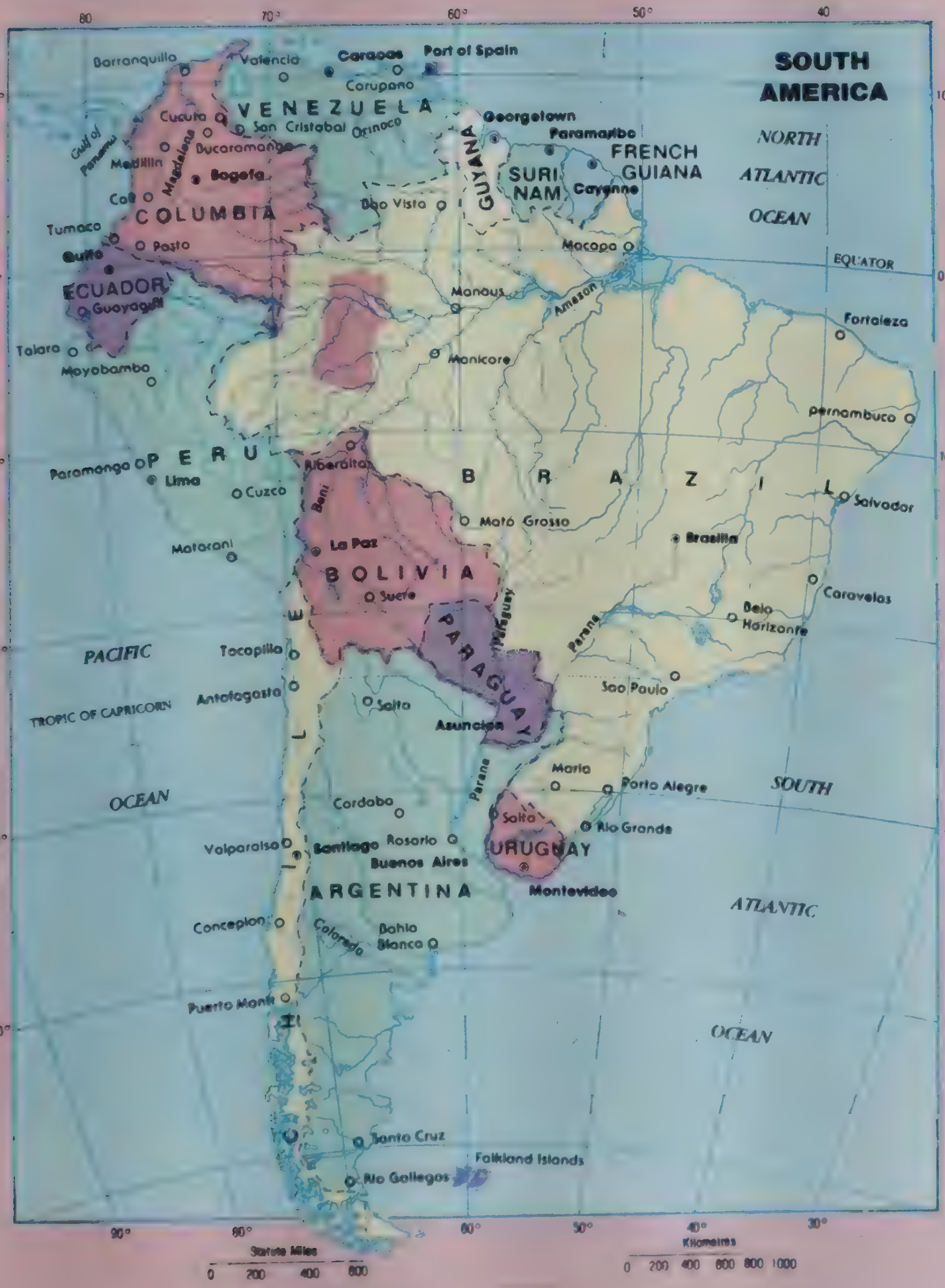
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Cucuta
San Cristobal
Orinoco
Gulf of Panama
Medillin
Magdalena
Bucaramanga
Bogota
Cali
COLUMBIA
Tumaco
Pasto
Quito
ECUADOR
Guayaqil
Talara
Moyobamba
Georgetown
GUYANA
Paramaribo
SURI NAM
FRENCH GUIANA
Cayenne
Boa Vista
Macapa
NORTH ATLANTIC OCEAN
EQUATOR
Manaus
Amazon
Manicore
Fortaleza
Pernambuco
PERU
Paramonga
Lima
Cuzco
Riberalta
Beni
BRAZIL
Salvador
Mato Grosso
Brasilia
Matarani
La Paz
BOLIVIA
Sucre
Caravelas
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TROPIC OF CAPRICORN
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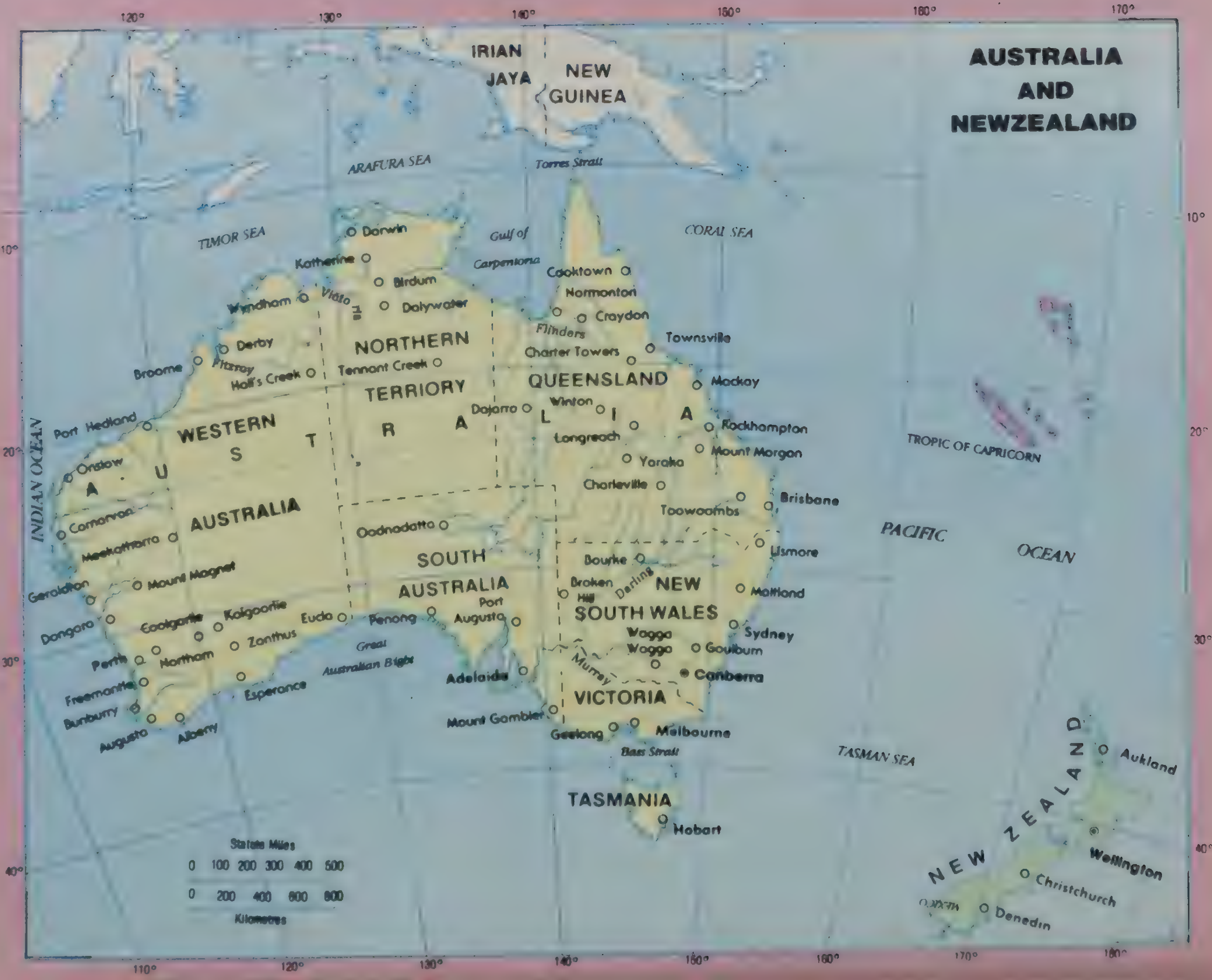
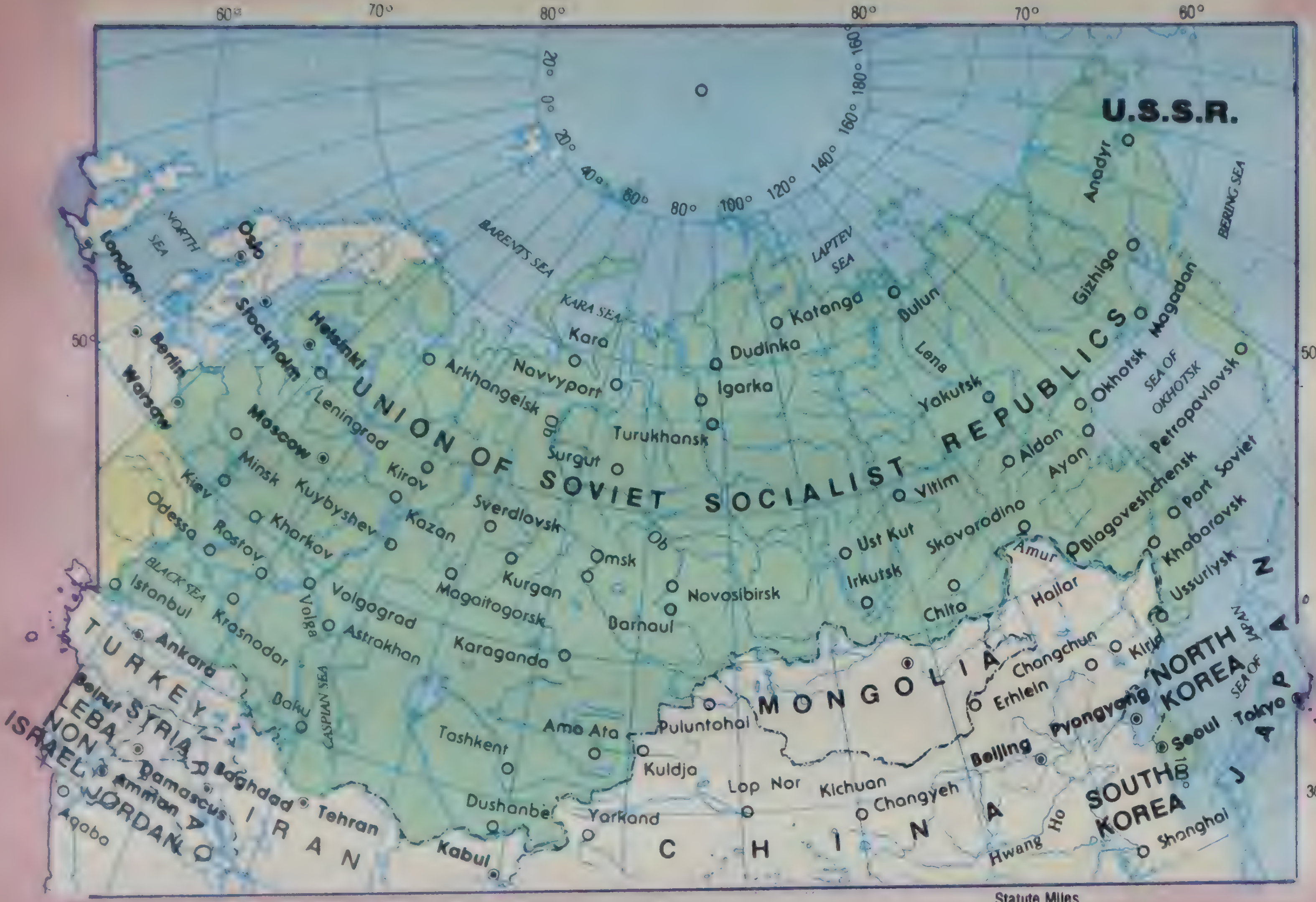

AUSTRALIA AND NEWZEALAND
IRIAN JAYA
NEW GUINEA
ARAFURA SEA
Torres Strait
TIMOR SEA
Gulf of Carpentaria
CORAL SEA
INDIAN OCEAN
A U S T R A L I A
WESTERN AUSTRALIA
NORTHERN TERRIORY
QUEENSLAND
SOUTH AUSTRALIA
NEW SOUTH WALES
VICTORIA
TASMANIA
Darwin
Katherine
Birdum
Dalywater
Wyndham
Victo
Derby
Fitzroy
Broome
Hall's Creek
Tennant Creek
Port Hedland
Onslow
Carnarvon
Meekatharra
Mount Magnet
Geraldton
Dongara
Coolgardie
Kalgoorlie
Perth
Northam
Zonthus
Eucla
Freemantle
Bunburry
Augusta
Albany
Esperance
Great Australian Bight
Oodnadatta
Penong
Port Augusta
Adelaide
Mount Gambier
Dajarra
Cooktown
Normanton
Croydon
Flinders
Charter Towers
Townsville
Mackay
Winton
Longreach
Rockhampton
Mount Morgan
Yaraka
Charleville
Toowoombs
Brisbane
Lismore
Bourke
Darling
Broken Hill
Maitland
Sydney
Wagga Wagga
Goulburn
Canberra
Murray
Geelong
Melbourne
Bass Strait
Hobart
TROPIC OF CAPRICORN
PACIFIC OCEAN
TASMAN SEA
NEW ZEALAND
Aukland
Wellington
Christchurch
Denedin
Statute Miles
0 100 200 300 400 500
0 200 400 600 800
Kilometres
120° 130° 140° 150° 160° 170°
110° 120° 130° 140° 150° 160° 170° 180°
10° 20° 30° 40°


U.S.S.R.
UNION OF SOVIET SOCIALIST REPUBLICS
MONGOLIA
CHINA
NORTH KOREA
SOUTH KOREA
JAPAN
TURKEY
SYRIA
LEBANON
ISRAEL
JORDAN
IRAN
BERING SEA
SEA OF OKHOTSK
SEA OF JAPAN
LAPTEV SEA
KARA SEA
BARENTS SEA
NORTH SEA
BLACK SEA
CASPIAN SEA
Anadyr
Gizhiga
Magadan
Okhotsk
Petropavlovsk
Port Soviet
Khabarovsk
Ussuriysk
Blagoveshchensk
Amur
Ayan
Aldon
Yakutsk
Lena
Bulun
Katanga
Dudinka
Igarka
Turukhansk
Vitim
Skovorodino
Ust Kut
Irkutsk
Chita
Hailar
Changchun
Kirin
Erhlein
Pyongyang
Seoul
Tokyo
Beijing
Shanghai
Hwang Ho
Changyeh
Kichuan
Lop Nor
Kuldja
Puluntohai
Yarkand
Kabul
Dushanbe
Tashkent
Ama Ata
Karaganda
Barnaul
Novosibirsk
Omsk
Ob
Kurgan
Magnitogorsk
Sverdlovsk
Surgut
Navvyport
Kara
Arkhangelsk
Kirov
Kazan
Kuybyshev
Moscow
Leningrad
Helsinki
Stockholm
Oslo
London
Berlin
Warsaw
Minsk
Kiev
Kharkov
Odessa
Rostov
Volgograd
Volga
Astrakhan
Krasnodar
Istanbul
Ankara
Baku
Tehran
Baghdad
Damascus
Beirut
Amman
Aqaba
60°
70°
80°
50°
30°
20°
0°
40°
60°
80°
100°
120°
140°
160°
180°
Statute Miles
0 200 400 600 800 1000
Kilometres
0 400 800 1200 1600

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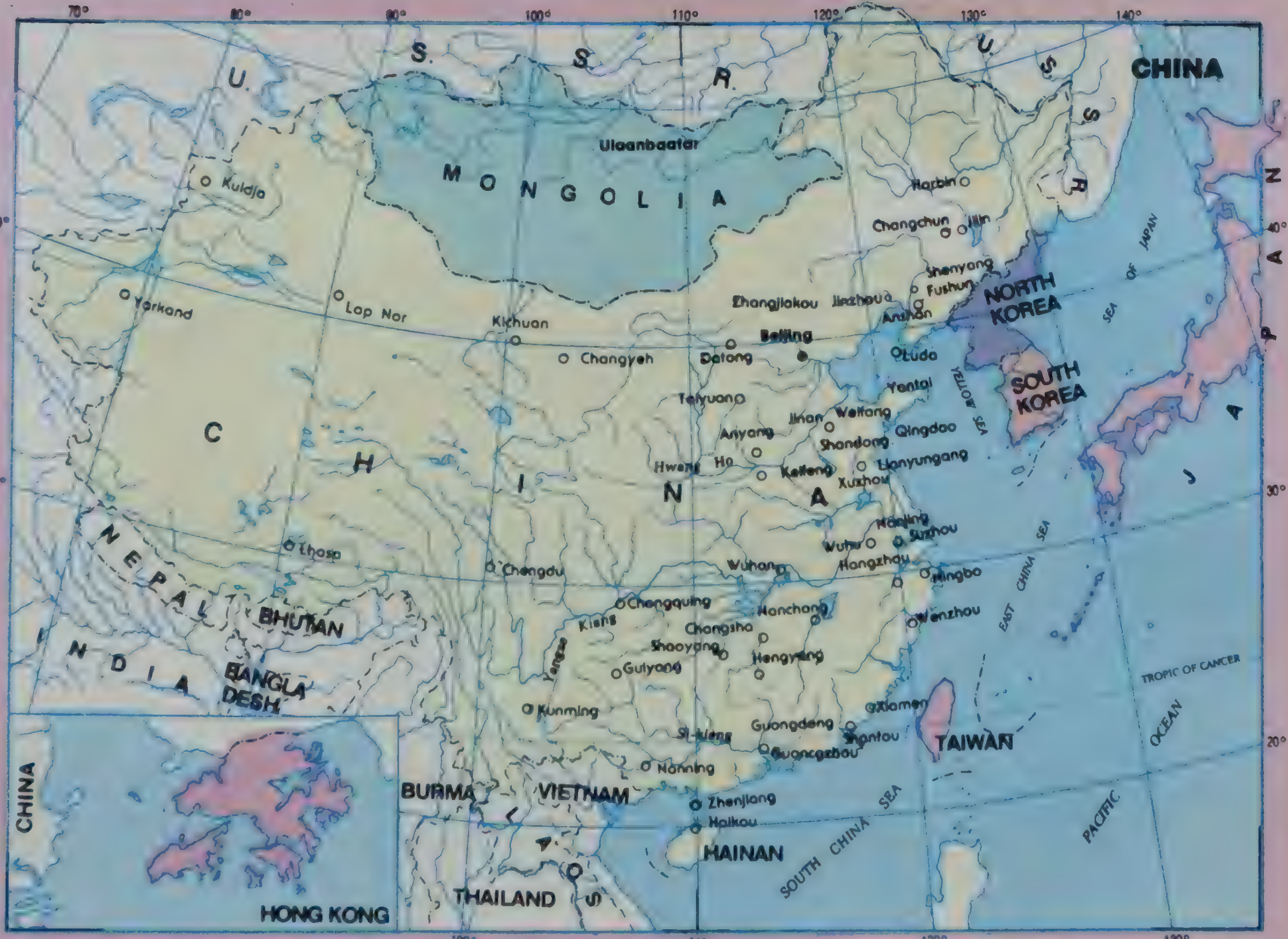
CHINA
U. S. S. R.
MONGOLIA
Ulaanbaatar
C H I N A
JAPAN
NORTH KOREA
SOUTH KOREA
SEA OF JAPAN
YELLOW SEA
EAST CHINA SEA
SOUTH CHINA SEA
PACIFIC OCEAN
TROPIC OF CANCER
TAIWAN
HAINAN
NEPAL
BHUTAN
BANGLA DESH
INDIA
BURMA
LAOS
VIETNAM
THAILAND
HONG KONG
CHINA
Kuldja
Yarkand
Lop Nor
Kichuan
Changyeh
Lhasa
Chengdu
Chongquing
Kiang
Yangtze
Kunming
Guiyang
Nanning
Zhanjiang
Haikou
Si-kiang
Guangdong
Guangzhou
Shantou
Xiamen
Hengyang
Shaoyang
Changsha
Nanchang
Wuhan
Hangzhou
Ningbo
Wenzhou
Wuhu
Nanjing
Suzhou
Xuzhou
Lianyungang
Kaifeng
Hwang Ho
Anyang
Taiyuan
Jinan
Weifang
Shandong
Qingdao
Yantai
Luda
Datong
Beijing
Zhangjiakou
Jinzhou
Anshan
Fushun
Shenyang
Changchun
Jilin
Harbin
70°
80°
90°
100°
110°
120°
130°
140°
40°
30°
20°
Statute Miles
0
200
400
600
Kilometres
0
200
400
600
800

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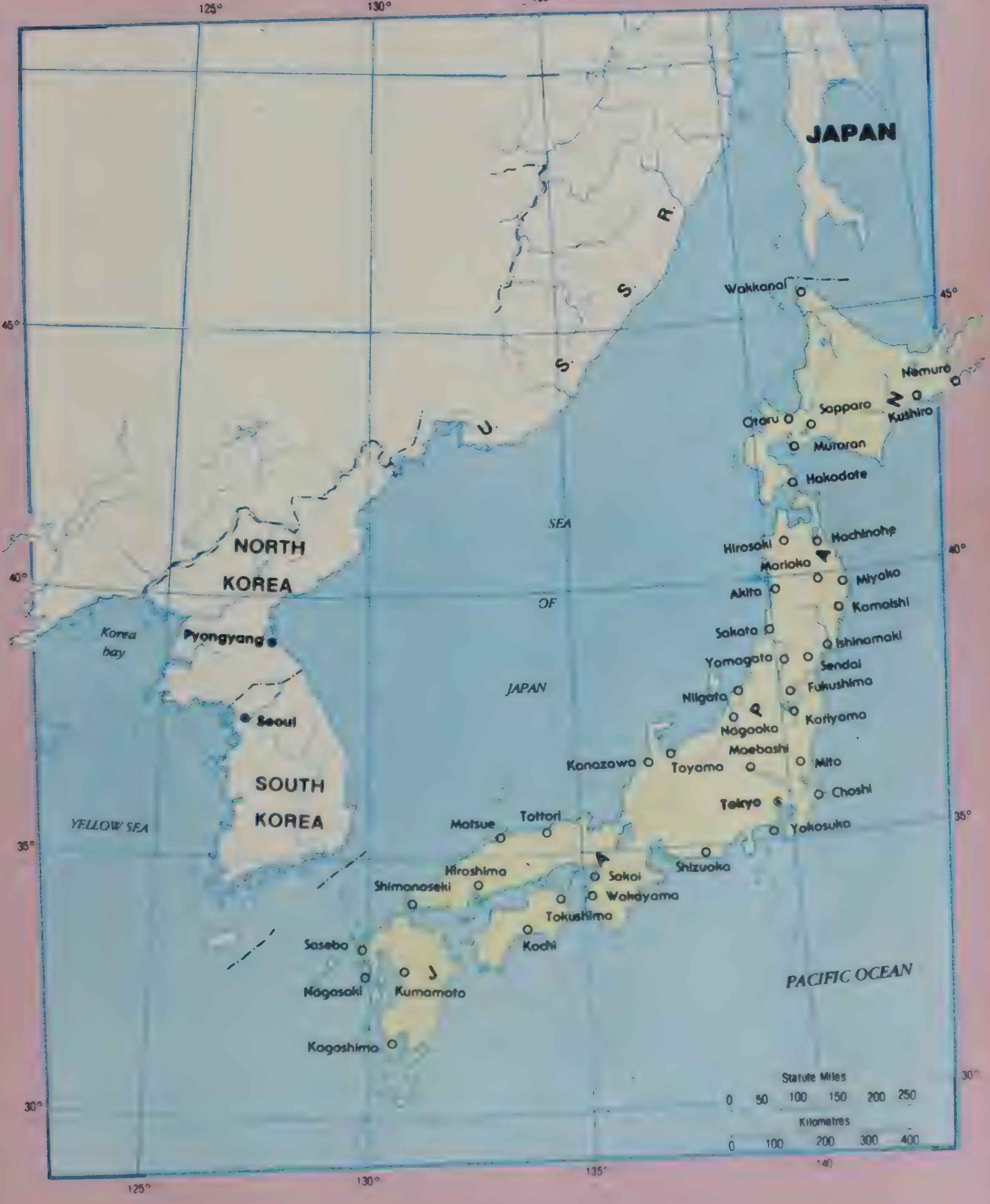
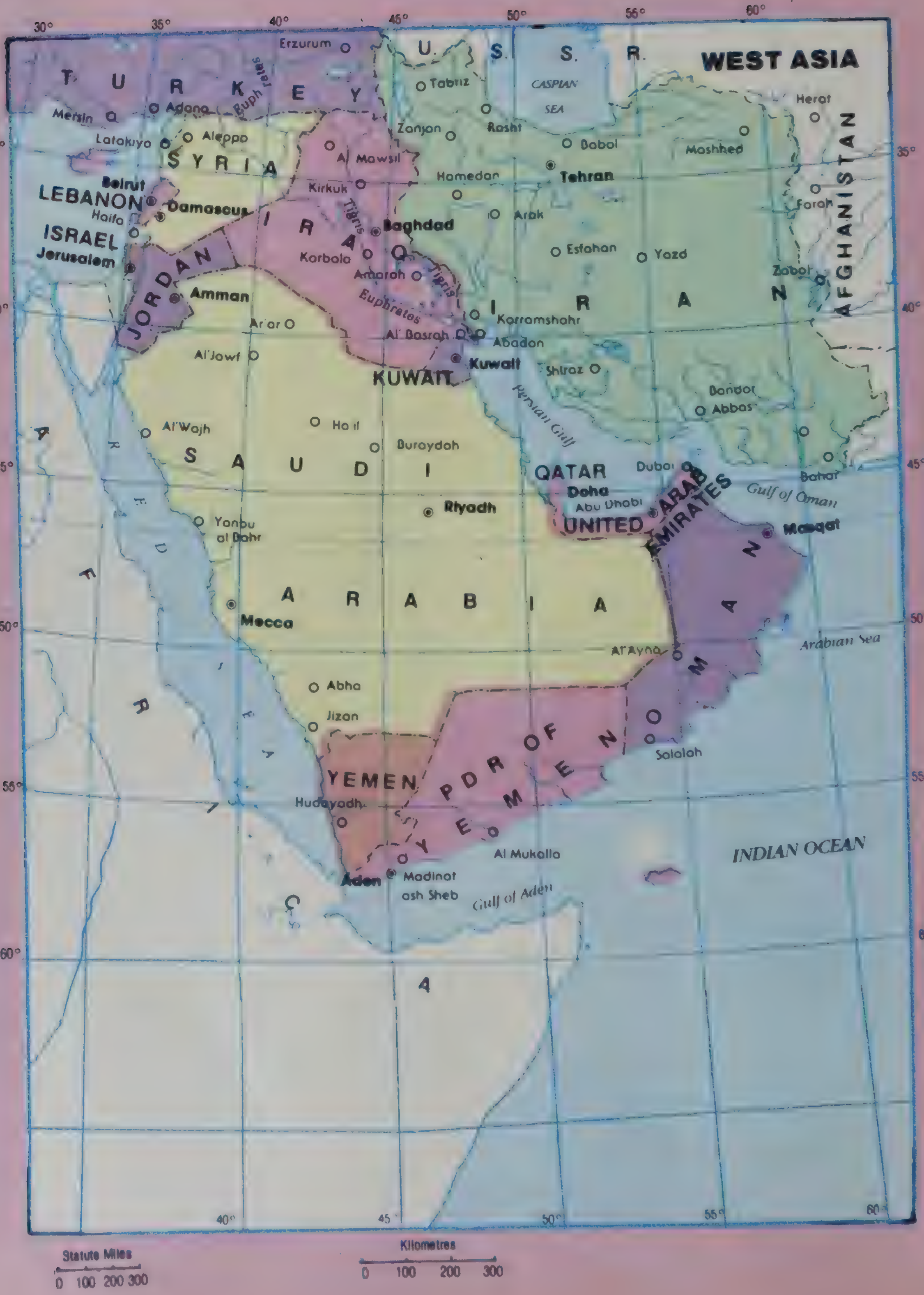
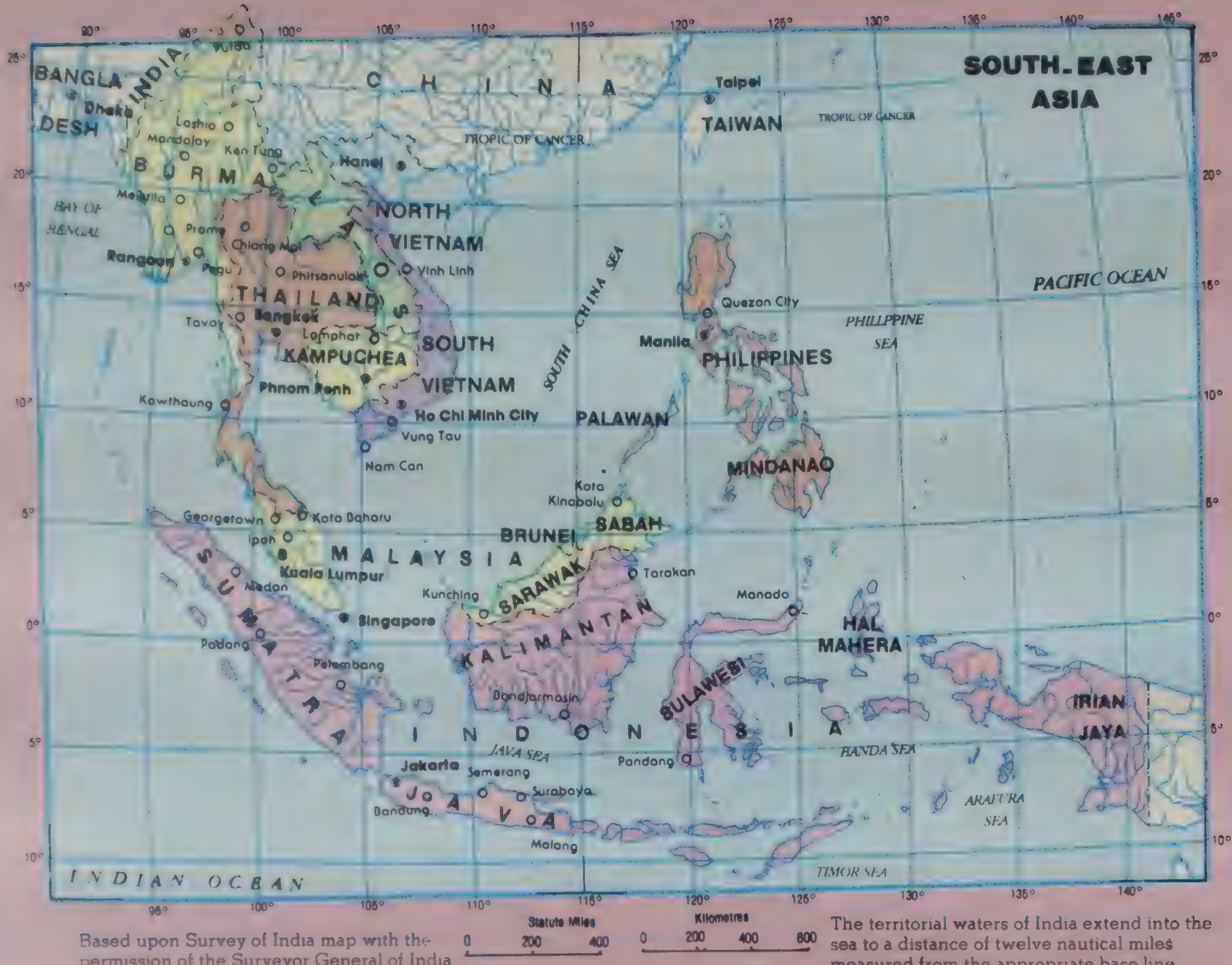
The territorial waters of India extend into the sea to a distance of twelve nautical miles measured from the appropriate base line.


125°
130°
135°
145°
45°
40°
35°
30°
140°
JAPAN
U. S. S. R.
NORTH KOREA
SOUTH KOREA
Korea bay
Pyongyang
Seoul
YELLOW SEA
SEA OF JAPAN
PACIFIC OCEAN
J A P A N
Wakkanai
Nemuro
Sapporo
Kushiro
Otaru
Muroran
Hakodate
Hirosaki
Hachinohe
Morioka
Akita
Miyako
Kamaishi
Sakata
Ishinomaki
Yamagata
Sendai
Niigata
Fukushima
Koriyama
Nagaoka
Maebashi
Kanazawa
Toyama
Mito
Choshi
Tokyo
Yokosuka
Matsue
Tottori
Shizuoka
Hiroshima
Shimonoseki
Sakai
Wakayama
Tokushima
Kochi
Sasebo
Nagasaki
Kumamoto
Kagoshima
Statute Miles
0 50 100 150 200 250
Kilometres
0 100 200 300 400


WEST ASIA
TURKEY
U. S. S. R.
CASPIAN SEA
AFGHANISTAN
IRAN
SYRIA
LEBANON
ISRAEL
JORDAN
IRAQ
KUWAIT
SAUDI ARABIA
QATAR
UNITED ARAB EMIRATES
OMAN
YEMEN
PDR OF YEMEN
AFRICA
RED SEA
Persian Gulf
Gulf of Oman
Arabian Sea
Gulf of Aden
INDIAN OCEAN
Euphrates
Tigris
Erzurum
Adana
Mersin
Latakiya
Aleppo
Beirut
Damascus
Haifa
Jerusalem
Amman
Al Mawsil
Kirkuk
Baghdad
Karbala
Amarah
Al Basrah
Kuwait
Tabriz
Zanjan
Rasht
Babol
Tehran
Mashhed
Herat
Farah
Hamadan
Arak
Esfahan
Yazd
Zabol
Korramshahr
Abadan
Shiraz
Bandar Abbas
Ar'ar
Al'Jowf
Al'Wajh
Ha'il
Buraydah
Riyadh
Yanbu al Bahr
Mecca
Abha
Jizan
Doha
Abu Dhabi
Dubai
Muscat
Bahar
Al Ayna
Salalah
Hudaydah
Aden
Madinat ash Sheb
Al Mukalla
30°
35°
40°
45°
50°
55°
60°
Statute Miles
0 100 200 300
Kilometres
0 100 200 300


SOUTH-EAST ASIA
BANGLA DESH
Dhaka
INDIA
C H I N A
TROPIC OF CANCER
Taipei
TAIWAN
Lashio
Mandalay
Ken Tung
B U R M A
Hanoi
Meiktila
BAY OF BENGAL
Prome
Chiang Mai
Rangoon
Pegu
L A O S
NORTH VIETNAM
Phitsanulok
Vinh Linh
THAILAND
Tavoy
Bangkok
Lomphat
KAMPUCHEA
SOUTH VIETNAM
Phnom Penh
Kowthaung
Ho Chi Minh City
Vung Tau
Nam Can
SOUTH CHINA SEA
Quezon City
Manila
PHILIPPINES
PHILLPPINE SEA
PACIFIC OCEAN
PALAWAN
MINDANAO
Kota Kinabalu
Georgetown
Kota Baharu
Ipoh
M A L A Y S I A
Kuala Lumpur
BRUNEI
SABAH
SARAWAK
Tarakan
Medan
Kunching
Singapore
Monado
S U M A T R A
Padang
Palembang
K A L I M A N T A N
HAL MAHERA
SULAWESI
Bandjarmasin
I N D O N E S I A
IRIAN JAYA
JAVA SEA
Jakarta
Semerang
Pandang
BANDA SEA
Surabaya
Bandung
J A V A
ARAFURA SEA
Malang
TIMOR SEA
INDIAN OCEAN
Statute Miles
0 200 400
Kilometres
0 200 400 600
90° 95° 100° 105° 110° 115° 120° 125° 130° 135° 140° 145°
25° 20° 15° 10° 5° 0° 5° 10°

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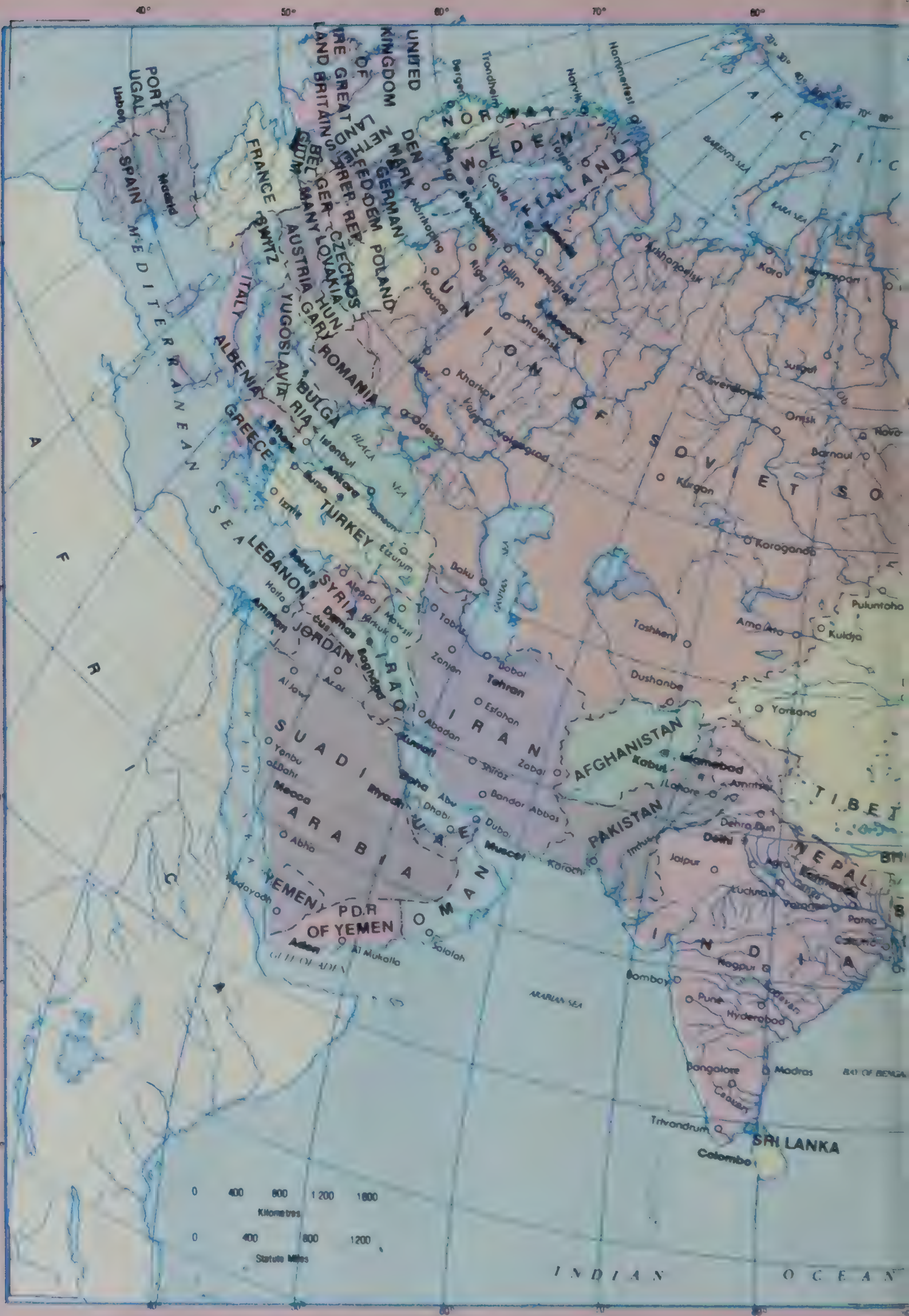
The territorial waters of India extend into the sea to a distance of twelve nautical miles measured from the appropriate base line.


40°
50°
60°
70°
80°
30°
20°
10°
0°
10°
PORTUGAL
Lisbon
SPAIN
Madrid
UNITED KINGDOM OF GREAT BRITAIN
IRELAND
FRANCE
BELGIUM
NETHERLANDS
DENMARK
GERMAN FED. REP.
GERMAN DEM. REP.
POLAND
CZECHOSLOVAKIA
SWITZ
AUSTRIA
HUNGARY
ITALY
YUGOSLAVIA
ALBENIA
ROMANIA
BULGARIA
GREECE
Athens
NORWAY
Bergen
Trondheim
Oslo
SWEDEN
Stockholm
Norrköping
FINLAND
Hammerfest
Narvik
Gavle
Riga
Tallinn
Kaunas
Leningrad
Smolensk
Kiev
Kharkov
Odessa
Volgograd
Arkhangelsk
Sverdlovsk
Omsk
Kurgan
Barnaul
Novo
Karaganda
Surgut
Kara
Novyy Port
Puluntoho
Kuldja
Alma Ata
Tashkent
Dushanbe
Yarkand
Baku
UNION OF SOVIET SO
ARCTIC
BARENTS SEA
KARA SEA
BLACK SEA
CASPIAN SEA
MEDITERRANEAN SEA
AFRICA
TURKEY
Istanbul
Ankara
Bursa
Izmir
Samsun
Erzurum
LEBANON
Beirut
SYRIA
Aleppo
Damascus
Haifa
Amman
JORDAN
Mosul
Kirkuk
Baghdad
IRAQ
Tabriz
Zanjan
Rabat
Tehran
Esfahan
Abadan
IRAN
Shiraz
Zabol
Bandar Abbas
Kuwait
Doha
Abu Dhabi
Dubai
U.A.E.
Muscat
OMAN
Salalah
Al Jawf
Aqar
SAUDI ARABIA
Yanbu
Al Bahr
Mecca
Riyadh
Abha
YEMEN
Hudaydah
P.D.R. OF YEMEN
Aden
Al Mukalla
GULF OF ADEN
ARABIAN SEA
AFGHANISTAN
Kabul
Islamabad
Amritsar
Lahore
PAKISTAN
Karachi
Indus
TIBET
NEPAL
Kathmandu
Dehra Dun
Delhi
Jaipur
Agra
Lucknow
Varanasi
Patna
Calcutta
INDIA
Nagpur
Bombay
Pune
Hyderabad
Godavari
Bangalore
Madras
Cauvery
BAY OF BENGA
Trivandrum
SRI LANKA
Colombo
INDIAN OCEAN
0 400 800 1200 1600
Kilometres
0 400 800 1200
Statute Miles

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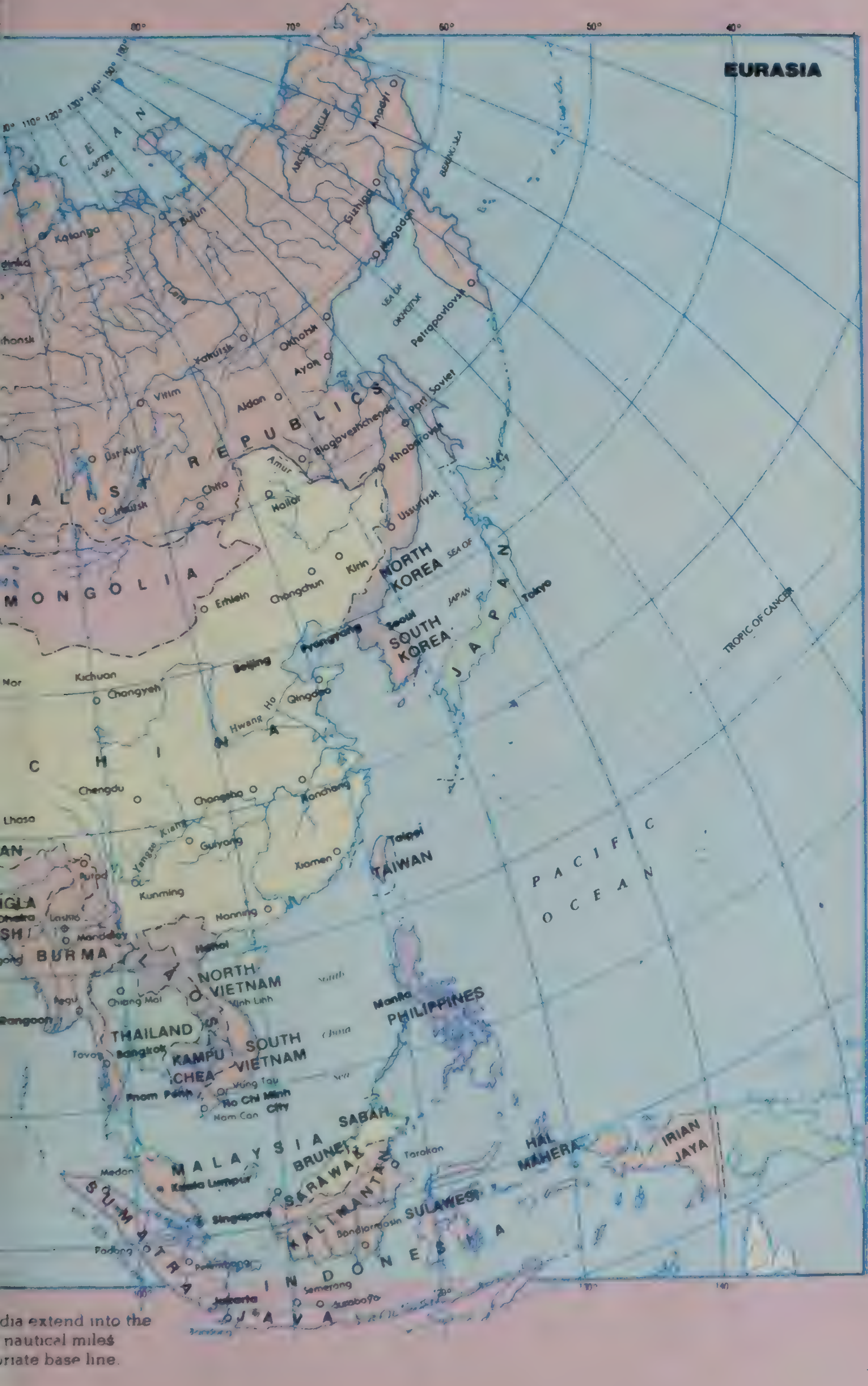
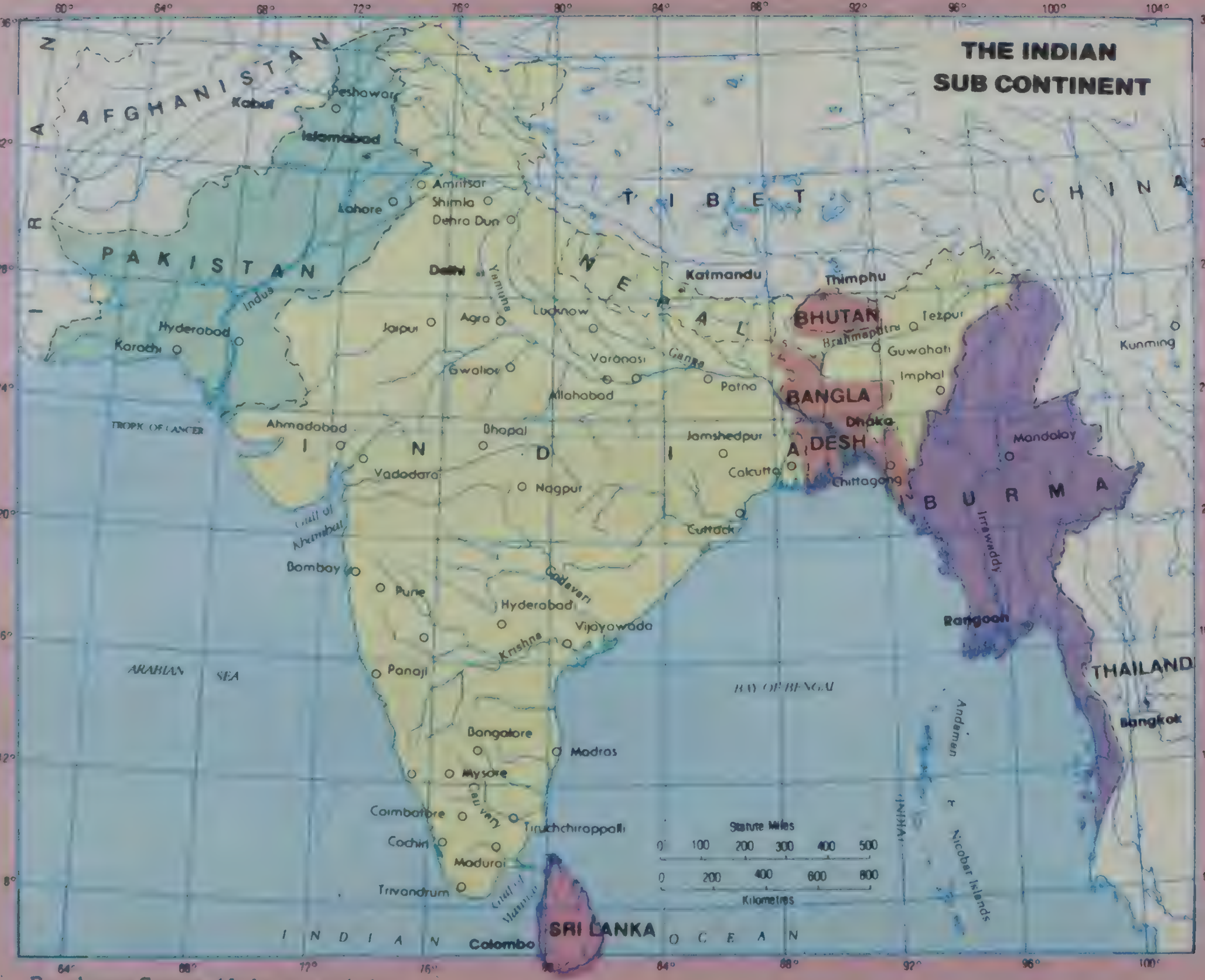
The territorial waters of
sea to a distance of twel
measured from the appr


EURASIA
80°
70°
60°
50°
40°
30°
20°
10°
0°
10°
OCEAN
LAPTEV SEA
ARCTIC CIRCLE
BERING SEA
Anadyr
Gizhiga
Magadan
SEA OF OKHOTSK
Petropavlovsk
Bulun
Katanga
Lena
Yakutsk
Okhotsk
Ayan
Aldan
Vitim
REPUBLICS
Blagoveshchensk
Port Soviet
Khabarovsk
Amur
Ust Kut
Chita
Hailar
Irkutsk
Ussuriysk
MONGOLIA
NORTH KOREA
SEA OF JAPAN
Kirin
Changchun
Erhlein
Tokyo
Seoul
SOUTH KOREA
JAPAN
TROPIC OF CANCER
Pyongyang
Beijing
Kichuan
Chongyeh
Qingdao
Hwang Ho
CHINA
Chengdu
Changsha
Nanchang
Lhasa
Yangtze Kiang
Guiyang
Taipei
TAIWAN
Xiamen
Kunming
Nanning
PACIFIC OCEAN
BURMA
Mandalay
Hanoi
NORTH VIETNAM
Vinh Linh
South China Sea
Manila
PHILIPPINES
Chiang Mai
Pegu
Rangoon
THAILAND
Bangkok
KAMPUCHEA
SOUTH VIETNAM
Tavoy
Phnom Penh
Vung Tau
Ho Chi Minh City
Nam Can
SABAH
MALAYSIA
BRUNEI
SARAWAK
KALIMANTAN
Tarakan
HALMAHERA
IRIAN JAYA
Medan
Kuala Lumpur
SUMATRA
Singapore
SULAWESI
Bandjarmasin
INDONESIA
Padang
Palembang
Semarang
Jakarta
Surabaya
JAVA

dia extend into the
nautical miles
riate base line.


THE INDIAN
SUB CONTINENT
AFGHANISTAN
Kabul
IRAN
Peshawar
Islamabad
PAKISTAN
Lahore
Indus
Hyderabad
Karachi
Amritsar
Shimla
Dehra Dun
Delhi
Yamuna
TIBET
CHINA
NEPAL
Katmandu
Thimphu
BHUTAN
Brahmaputra
Tezpur
Guwahati
Imphal
Kunming
Jaipur
Agra
Lucknow
Gwalior
Varanasi
Ganga
Patna
Allahabad
BANGLA DESH
Dhaka
Chittagong
Calcutta
Jamshedpur
TROPIC OF CANCER
Ahmadabad
Vadodara
Bhopal
INDIA
Nagpur
Gulf of Khambat
Cuttack
Bombay
Pune
Godavari
Hyderabad
Vijayawada
Krishna
Panaji
ARABIAN SEA
BAY OF BENGAL
Bangalore
Madras
Mysore
Cauvery
Coimbatore
Tiruchchirappalli
Cochin
Madurai
Trivandrum
Gulf of Mannar
SRI LANKA
Colombo
INDIAN OCEAN
Statute Miles
0 100 200 300 400 500
0 200 400 600 800
Kilometres
BURMA
Mandalay
Irrawaddy
Rangoon
THAILAND
Bangkok
Andaman
Nicobar Islands
INDIA
60° 64° 68° 72° 76° 80° 84° 88° 92° 96° 100° 104°
36° 32° 28° 24° 20° 16° 12° 8°

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The territorial waters of India extend into the sea to a distance of twelve nautical miles measured from the appropriate base line.

CUBA

Cap: Havana; **Area:** 110,922 sq km; **Pop:** 10,000,000; **Lang:** Spanish; **Rel:** Christian; **Currency:** Peso. £ 1 = 0.966 Pesos.

Cuba, the largest island in the Greater Antilles group is known as the Pearl of Antilles. Its neighbours are USA, Mexico, Jamaica and Haiti. The Bahamas Islands are to the north.

Columbus discovered Cuba in 1492 and Spain ruled it for four centuries. In 1898 Cuba became an independent republic.

In 1959 Dr. Fidel Castro overthrew General Batista, the dictatorial President and took over power.

Cuba is the largest producer of sugar in the world. Tobacco is the second largest crop. Cattle, poultry and fishing have become important in recent years. Cuba is rich in nickel deposits. Copper, chromite and manganese are also found.

President: Dr. Fidel Castro Ruz. **First Vice President:** Raul Castro Ruz.

Mission in India: Embassy of the Republic of Cuba, D-5, South N.D.S.E., Part II, New Delhi-110 049. Tel: 669162.

CYPRUS

Cap: Nicosia; **Area:** 9,251 sq km; **Pop:** 660,000 (82% Greeks and 18% Turks); **Lang:** Greek and Turkish; **Rel:** Christianity and Islam; **Currency:** Cyprus Pound US $ 1 = Cy. Pound 0.51.

The Republic of Cyprus lies in the North Eastern corner of the East Mediterranean basin, at the meeting point of three continents — Europe, Asia and Africa. Cyprus appeared for the first time in the history of civilization in the 7th millenium B.C. Cyprus became independent in 1960. In 1974 it was invaded by Turkey and nearly 40% of its territory is still under Turkish occupation.

The healthy climate and the natural beauty of the island make it an ideal place for the tourists.

Cyprus is mainly an agricultural island. Main agricultural exports are: potatoes, wine products, carrots, fresh vegetables, citrus. Main industrial exports are: readymade clothing, footwear, cement, travel goods, plastic products, water pumps, furniture, cosmetics, etc. Other main exports are minerals, the importance of which has been diminishing over the last few years.

Turkish Cyprus

The Turkish controlled area of northern Cyprus unilaterally declared independence in 1983. It has been named 'Turkish Republic of Northern Cyprus.'

The centre-right and left-of-centre Cypriot coalition Government headed by the Prime Minister Dervis Eroglu, *was officially installed in power in July 1985. The coalition became official when its programme was endorsed by the majority of the newly elected Parliament*

Eroglu, whose National Unity Party is allied with the Communal Liberation Party, received 32 votes for his programme against 16 by the opposition (pro-Moscow) Republican Turkish Party and the Renaissance Party deputies in the 50-strong Parliament elected June 1985.

Rauf Denktash *is the President of the Republic.*

President: Spyros Kyprianou.

Mission in India: High Commission of the Republic of Cyprus, 52, Jor Bagh, New Delhi-110 003. Tel: 697503.

Consulate: Bombay—14, K. Dubash Marg, Bombay-400 023. Tel: 244294.

CZECHOSLOVAKIA

Cap: Prague; **Area:** 127,877 sq km; **Pop:** 15,588,000; **Lang:** Czech and Slovak; **Rel:** Christian; **Currency:** Koruna (KCs). US $ 1 = 5.89 Kcs.

A socialist republic landlocked in Central Europe, Czechoslovakia is composed of two main population groups, Czechs and Slovaks.

The Czechoslovak Socialist Republic was established in Jan. 1969 as a federal state of two nations of equal rights—the Czechs and the Slovaks. The Czechs and the Slovaks form two republics within the federation, each with its own government.

Czechoslovakia is a highly industrialized country. Principal exports are machinery and equipment, chemicals and fuels, glass and other manufactured goods. Wheat, barley, potatoes and sugar beet are among the important crops.

President: Gustav Husak. **P.M.:** Lubomir Strougal.

Mission in India: Embassy of Czechoslovakia, 50-M Niti Marg, Chanakyapuri, New Delhi-110021. Tel: 608382.

Consulates: 'Marcopia', 5, Deshmukh Marg, Bombay and

24 B, Park Street, Calcutta-700 016. Tel: 24-8661.

DENMARK

Cap: Copenhagen; **Area:** 43,074 sq km; **Pop:** 5,141,000; **Lang:** Danish; **Rel:** Christian; **Currency:** Krone. US $ 1 = 9 krone.

Denmark is situated in northern Europe between the North Sea and the Baltic Sea. It comprises of the peninsula of Jutland, the islands of Zealand, Funen and Bornholm and 480 smaller islands. Greenland and the Faroe Islands also form part of the Kingdom of Denmark.

Denmark is a constitutional monarchy, the Queen and the Parliament (Folketing) jointly holding legislative powers.

About 70 per cent of the land is under cultivation. Denmark is one of the largest exporters of dairy products. Fishing forms an important occupation. Denmark is famous for its co-operative institutions. The first co-operative society was established in 1866. Shipbuilding, machinery of different types, textiles, iron and steel-ware account for a major portion of industry.

Head of State: Queen Margarethe II. **P.M.:** Poul Schluter.

Mission in India: Royal Danish Embassy, 2, Golf Links, New Delhi-110 003. Tel: 616273.

Consulates: Bombay—L&T House, Narotham, Morarjee Marg, Ballard Estate.

Madras: 8, Cathedral Road, Madras-600 086.

Calcutta: McLeod House, 3, Netaji Subhas Road, Calcutta-700 001. Tel: 23-0482.

DJIBOUTI

Cap: Djibouti; **Area:** 21,783 sq km; **Pop:** 340,000; **Lang:** Somali and French; **Rel:** Islam; **Currency:** Djibouti Franc. US $ 1 = 198.16 DF

Djibouti, first known as French Somaliland and then as the French Territory of Afars and Issas, became independent on June 26, 1977 under the name of Djibouti.

Lying between Ethiopia and Somalia and looking out on the Red sea and the Gulf of Aden, the state is of extreme strategic importance.

The land is economically poor being mostly volcanic desert. The indigenous population is mostly Muslim. Agriculture is possible only in restricted areas with irrigation facilities. Goats, sheep and camels form the major wealth of the state. Salt is a major product with huge salt deposits in the lakes of Alol and Assal. Trade is almost entirely based in the capital Djibouti.

President: Hassan Gouled Aptidon. **P.M.:** Barkat Gourad Hamadore.

DOMINICA

Cap: Roseau; **Area:** 750 sq km; **Pop:**74,859; **Lang;** English and French Patois; **Rel:** Christian; **Currency:** US $ 1 = EC$ 2.70.

Commonwealth of Dominica lies in the Lesser Antilles. Once a British protectorate, it assumed the status of a British Associate State in 1967 and became fully independent in 1978.

The island is volcanic in origin and largely mountainous. The population includes Negroes, Mulattoes, Carib Indians and Europeans.

Exports include bananas, cocoa, copra and fruits.

President: Aurelius Marie; **P.M:** Mary Eugenia Charles.

DOMINICAN REPUBLIC

Cap: Santo Domingo: **Area:** 48,422 sq km; **Pop:** 6101000 **Lang:** Spanish: **Rel:** Christian. **Currency:** Peso Oro. US $1 = 1 Peso Oro.

The Dominican Republic occupies the eastern two-thirds of Hispaniola, the second largest island of the Greater Antilles. Originally under Spain, the Dominican Republic became independent in 1844.

The state is predominantly agricultural. The most important crops are sugarcane and coffee.

President: Dr. Joaquin Balaguer.

ECUADOR

Cap: Quito; **Area:** 283,561 sq km; **Pop:** 90,90,000; **Lang:** Sapnish and tribal dialects; **Rel:** Christian; **Currency:** Sucre. US $1 = 95.75 Sucre.

Ecuador lies on the west coast of South America. Two ranges of the Andes cross the country from north to south, dividing it into three natural regions, coastal, highlands and the orient. *Guayaquil* is the chief seaport and airport. The *Galapagos Islands* belong to Ecuador. Ecuador, a part of the great Inca Empire, came under Spanish rule in 1533. It became independent in 1830.

Ecuador is the world's largest producer of bananas. Sugarcane, African palm, and rice are grown. Silver ore is now the chief mineral product. There are large deposits of copper, gold and zinc. The production of petroleum is increasing. The so-called 'Panama' hats made of Toquilla straw are made in Ecuador.

President: Leon Febres Cordero Ribadeneyra.

Mission in India closed in 1985.

EGYPT

Cap: Cairo; **Area:** 997,677 sq km; **Pop:** 4,56,57,000 **Lang:** Arabic; **Rel:** Islam and Christian; **Currency:** Pound. US$1 = 1.83 £E.

Egypt, traditionally known as the Gift of the Nile, occupies north east Africa.

Egypt has one of the oldest civilizations in the world, its recorded history going back to more than 5000 B.C. In 1922 Egypt became an independent monarchy and in 1952 a republic.

The main agricultural area is Lower Egypt which covers the delta of the Nile. The chief crops are cotton, onions, wheat, maize, millet, rice, sugarcane and fruits of various kinds.

Principal exports are cotton, rice, mineral products, textiles, refrigerators, tyres, cement and electrical instruments.

President: Hosni Mubarak. **PM:** Atef Mohamed Naguib Sedki.

Mission in India. Embassy of the Arab Republic of Egypt, Sunder Nagar, New Delhi-110 003. Tel: 619081.

Consulate: Bombay- Maker Tower 'B', Flat/ No. 41/B.

EL SALVADOR

Cap: San Salvador; **Area:** 21,393 sq km; **Pop:** 53,88,000; **Lang:** Spanish; **Rel:** Christian; **Currency:** Colon. US $1 = C 2.50.

El Salavador in Central America became independent in 1821.

The country is predominantly agricultural. The principal crop is coffee which provides half the exports. Other products are cotton, maize and sugar. Fisheries are being developed and figure prominently in the export list. Industry is growing.

President: Jose Napoleon Duarte.

EQUATORIAL GUINEA

Cap. Malabo (formerly Santa Isabel); **Area:** 28,051 sq km; **Pop:** 383,000; **Lang:** Spanish and Fang; **Rel:** Christian; **Currency:** Ekuele (plural Bikuele). In 1984 the currency joined the franc zone.

Equatorial Guinea, formerly Spanish Guinea, comprises the islands of *Fernando Po, Corcisco, Great Elobey, Little Elobey and Annobon* and the mainland territory of *Rio Muni* on the west coast of Africa. In 1975, almost all place names were changed by President Macias Nguema. The capital Santa Isabel thus became Malabo.

Francisco Macias Nguema was ousted by his nephew, Mbasogo on Sept. 29, 1979.

The island of Fernando Po is mostly mountainous. Coffee is cultivated upto 3000 ft. and cocoa upto 2000 ft. There are also forests of ebony, mahogany and oak. Other products are cocoa, coffee, timber, palm oil and bananas.

President: Lt. Col Teodoro Obiang Nguema Mbasogo.

ETHIOPIA

Cap: Addis Ababa; **Area:** 12,21,900 sq km; **Pop:** 4,20,00,000 **Lang:** Amharic (official language), English; **Rel:** Christian and Islam; **Currency:** Birr US $1 = 2.07 Birr.

Ethiopia is a mountainous country in North East Africa, having access to the Red Sea, through the province of Eritrea, which was federated with Ethiopia in 1952 and later was united with Ethiopia.

Ethiopia is one of the most ancient countries of the world, with a colourful history. The Ethiopian emperors claimed descent from Solomon and the famous Queen of Sheba. The last Emperor of Ethiopia Haile Sellasie I was deposed by the marxist armed forces which took over the govt. in 1974.

The economy is mainly agricultural and pastoral. Coffee export earned 60% of all revenue in 1977. Hides and skins, pulses and oil seeds are also exported. Industry is confined to food processing, manufacture of

The Poor and the Rich

Ethiopia remains the world's poorest country. Its GNP per capita runs at about $110 a year, compared with $18,250 in the United States. The next-poorest country is Bangladesh, which is better governed but desperately overpopulated.

The rankings come from the World Bank, *which does annual estimates of GNP and other illuminating numbers for most of the world's countries. The purpose is not merely to suggest the disparity between the richest and the poorest, which is pretty obvious, but also to provide some reliable sense of the enormous variety of conditions in between, and of the rate at which things are changing.*

At precisely the midpoint of the list stands Jamaica, with half the countries richer than it and half poorer. Living very close to the United States, Jamaica thinks of itself as poor. In fact it is middle-class. Life expectancy, a good measure of living conditions in general, is 73 years there — far longer than in any but three or four other Third World countries and very close to the average expectancy of 76 years in the wealthy industrial democracies. Part of the explanation is Jamaica's school system, and most of its children of high school age are actually in school. Thanks to this high degree of literacy, Jamaicans have more in common with Americans, in every respect but income, than the unfortunate people of Ethiopia or Bangladesh have in common with them.

Other countries clustered around the median on the World Bank's list are Botswana, Paraguay, Peru and Turkey — a very mixed group. Botswana is one of the great successes of development economics. At independence 21 years ago, it had one of the lowest incomes in the world, as most of the black African countries still have. Today, despite drought and a vulnerable location on South Africa's border, it is halfway up the World Bank's income ladder.

In contrast Paraguay stagnates under the rule of General Alfredo Stroessner, its president for the past 37 years. Peru, deeply divided by race, geography and social class, devotes itself to a kind of populist politics that has proved to be death to economic growth.

Turkey, on the other hand, is growing steadily under a model plan for dealing with foreign debts and inflation. None of these middle-class countries is rich, but none, by the standards of the planet as a whole, can be called poor.

The World Bank has argued for years that to divide the world into two zones, the developed and the underdeveloped, is misleading as well as patronizing. The gradations are infinite, and there are no longer clearly defined lines among the categories.

textiles and goods for local consumption.

President: Lt. Col. Mengistu Haile Mariam.

Mission in India: Embassy of Ethiopia, 7/50-G Satya Marg, Chanakyapuri, New Delhi-110 021. Tel: 692311.

FIJI

Cap: Suva; **Area:** 18,376 sq km; **Pop:** 6,74,000. **Lang:** English and Figian. **Rel:** Christian and Hindu. **Currency:** Dollar. US $1 = $F1.20.

Fiji consists of about 800 islands, lying 1100 miles north of New Zealand. The largest of the islands *Viti Levu* constituting more than half of the total land area of Fiji islands is the seat of the capital, **Suva**. Fiji lies on the main route between Australia, New Zealand and North America and is the centre of communications in the South West Pacific.

These islands came under British rule in 1874. From 1879, indentured Indian labour was imported into the islands to work on European sugar plantations. Practically all the Indian workers settled permanently in the islands. Their descendants now form 50 per cent of the population. Melanesians, the original inhabitants, make up 43 per cent, the rest being made up of Europeans, Chinese and others. On Oct, 10, 1970 Britain granted independence to Fiji.

Fiji is a famous tourist centre. Its major products are agricultural. Sugar and coconuts form 90 per cent of the total exports. Mining is limited and industries are few.

In October 1987 military strongman Col. Sitiveni Rabuka declared Fiji a republic.

FINLAND

Cap: Helsinki: **Area:** 337,032 sq km; **Pop:** 48,59,000. **Lang:** Finnish and Swedish; **Rel:** Christian: Currency: Mark. US $1 = 7.10 Marks.

The Republic of Finland is a Baltic State, which once formed part of the Russian Empire. It became an independent republic in 1917.

Finland's economy is based on conifer forests which cover 65 per cent of the land. Paper and pulp industry is highly developed. Other industries are shipbuilding, metals, textiles, leather and chemicals. Finland has a fairly big fleet of merchant marine with a gross tonnage of 1,649,687 tonnes (1985).

President: Mauno Koivisto, **P.M:** Kalevi Sorsa.

Mission in India: Embassy of Finland, Nyaya Marg, Chanakyapuri, New Delhi-110 021. Tel: 605409.

Consulates: Bombay- Bennet, Coleman & Co., Dr. D.N. Road.

Calcutta: Calland House, 6th Floor, Chitrakoot, 230 A, Acharya Jagdish Chandra Road, Calcutta-700 020. Tel: 44-4757.

Madras: C/o Travancore Rayons Ltd., 762 Mount Road, P.O. Box 2730, Madras-600 002.

FRANCE

Cap: Paris; **Area:** 551,695 sq km; **Pop:** 54.7 million. **Lang:** French; **Rel:** Christian. **Currency:** Franc. US$1 = 6.73 Francs.

France, the largest country in western Europe, lies between three big countries-Spain, Germany and Italy. The island of Corsica-the birthplace of Napoleon –forms an intergral part of France.

Once a grand monarchy, the French Revolution (1789-1793) made France a republic. Since then republican and imperial forms of government followed one after another until the Fifth Republic and the French Community came into being in 1958 under President Charles de Gaulle.

The country is self-sufficient in agricultural production and exports large quantities of agricultural products to other countries. Among manufactured products, the most important are chemicals, silk, cotton textiles, automobiles, aircraft, ships, precision instruments, electronic equipments, perfumes and wines. Over the last 20 years urban development and technological progress have profoundly changed French people's everyday life.

President: Francois Mitterrand. **P.M.:** Jacques Chirac.

Mission in India: Embassy of France, 2/50 E, Shantipath, Chanakyapuri, New Delhi 110 021. Tel: 677471.

Consulates: Bombay - 'Datta Prasad' Bldg., Second Floor, Nowroji Gamadia Cross Road, Bombay-400 026.

Calcutta: 23/6, Park Mansions, Calcutta-700 016. Tel: 29-0978.

Madras: Hon. Consul, VDS House, 26 Cathedral Road, Madras-600 086. Tel: 473177.

Pondicherry: Rue de la Marine, Pondicherry-605 001.

GABON

Cap: Libreville; **Area:** 267,000 sq km; **Pop:** 11,46,000; **Lang:** French and Bantu dialects; **Rel:** Christian and Tribal; **Currency:** Franc CFA. French F1 = 50 F CFA).

The Gabon Republic is situated on the western coast of Africa. Formerly a province of French Equatorial Africa, Gabon attained independence on Aug. 17, 1960.

The economy, hitherto largely dependent on forestry, is now dominated by mining. The manganese deposit at Moanda in the south is one of the world's richest deposits. Crude oil production is already the fifth highest in Africa. Uranium, gold and iron ore are also mined.

President: Albert-Bernard (Omar) Bongo, **P.M:** Leone Mebiame.

THE GAMBIA

Cap: Bathurst; **Area:** 11,295 sq km; **Pop:** 6,30,000; **Lang:** English and Mandinka; **Rel:** Islam and Christian; **Currency:** Dalasi–US $1 = 4.74 Dalasi.

The Gambia is a narrow strip of land in West Africa, extending inland from the Atlantic Ocean for about 30 miles on either side of the Gambia River and surrounded on three sides by Senegal. Nearly half the inhabitants belong to the Mandingo tribe.

Formerly a British colony and protectorate the Gambia became an independent state within the Commonwealth on Feb. 18, 1965 and a Republic in April 1970.

Peanuts are the main crop, along with rice and palm kernels. Textiles, food and manufactured goods are significant items of import.

President: Sir Dawda Kairaba Jawara.

GERMANY (East)

Cap: Berlin: **Area:** 108,179 sq km; **Pop:** 1,66,58,000. **Lang:** German; **Religion:** Christian; **Currency:** Mark. US $1 = 3.43 M.

When Germany surrendered to the Allies in 1945 the country was divided into four zones of Allied occupation. The northern section of East Prussia with about 14 per cent of the population and 24 per cent of the area of the former Reich came under Russian occupation. The area under Russian occupation was constituted into the independent socialist state of the German Democratic Republic on October 7, 1949.

Important crops of East Germany are wheat, rye, barley, oats and potatoes. Farming is organised on state-sponsored co-operative basis. The only natural power source is lignite (brown coal) which supplies 90 per cent of the basic energy. Industries are highly developed-machines, chemicals, heavy engineering and shipbuilding. Special stress is laid on quality products like optics, electronics and precision tools. The Leipzig trade fairs are well known throughout the world.

Chairman of the Council of State: Erich Honecker.

Mission in India: Embassy of Germany, 2 Nyaya Marg, Chanakyapuri, New Delhi-110 021. Tel: 3014204.

GERMANY (West)

Cap: Bonn: **Area:** 248,625 sq km; **Pop:** 6,12,14,000; **Lang:** German; **Rel:** Christian; **Currency:** Deutsche Mark; US $1 = 3.43 DM.

The Federal Republic of Germany lies in the heart of Europe.

It was Bismarck, Chancellor of Prussia, who laid the foundation of the German Empire in 1871. After the defeat of Germany in the Second World War the erstwhile German territory was divided into two occupation areas, Russia occupying East Germany and USA, Britain and France occupying West Germany. The city of Berlin was also divided into West Berlin (USA, Britain and France) and East Berlin (Russia). West Germany came into being on May 23, 1949. The German Federal Republic consists of 10 states (Lander). West Berlin is also a state of the Federal Republic.

West Germany showed phenomenal economic growth during post-war years in industrial production, notably in iron and steel, vehicles, engineering, ship-building, electrical goods and chemicals. Since the currency reform in 1949 the economy of W. Germany has grown prodigiously.

Federal President: Richard Von Weizsaecker. **Federal Chancellor:** Helmut Kohl.

Mission in India: Embassy of Federal Republio of Germany, 6 Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 604861.

Consulates: Bombay- Hoechst House, 10th Floor, Nariman Point;

Calcutta: Hastinigs Park Road, Calcutta-700 027. Tel: 45-9141.

Madras: Consulate General of FRG, 22, C.I.C. Road, PB 6801, Madras-600 105. Tel: 471747.

GHANA

Cap: Accra; **Area:** 2,38,537 sq km; **Pop:** 1,22,05,574; **Lang:** English (official language) and eight major national languages; **Rel:** Christianity and Islam; **Currency:** Cedi, US $1=C90.

Ghana is composed of the former British Colony Gold Coast and the British-ruled Togoland in Western Africa.

Ghana got independence on 6th March 1957 and became an independent republic within the Commonwealth on July 1, 1960.

Ghana is primarily an agricultural country and produces the best quality cocoa which constitutes a major export item. Other cash crops include kolanuts, palm products, bananas, coffee, shea-nuts and rubber. It also exports timber, gold, diamonds, manganese and bauxite.

Provisional National Defence Council Chairman and Head of State: Flt. Lt. Jerry J. Rawlings.

Mission in India: High Commission of Ghana, A-42, Vasant Marg, Vasant Vihar, New Delhi-110 057. Tel: 670788.

The Dream of a New Reunification

Long-cherished Unity: Kohl and Honecker

Erich Honecker's visit to West Germany in September, 1987 has triggered off the question of the re-unification of Germany. Historically Germany was never a nation except when Bismarck united the loose collection of German States under the domination of Prussia in 1871. This ended in 1945 with the fall of Hitler and the division of Germany into East and West.

The East German leader Erich Honecker visited West Germany on September 7, 1987. This was the first visit by an East German leader to West Germany in nearly forty years. Though W. Germany does not recognise E. Germany as a nation, Honecker was accorded all the honours due to a visiting Head of State. The visit brought to the fore questions about East-West relations in Europe, the limits of detente and the economic repercussions of a united Germany — the two most prosperous economic powers in West and East Europe.

The rest of Europe watches in alarm at this resurgence or German Spirit *twice in this century. German militarism reared its head to devastate Europe in two world wars. West and East Germany are the pillars of two different ideological systems and re-unification of Germany has to be considered in the context of its repercussions on NATO and Warsaw Pact alliances. Its economic consequences will also be considerable. W. Germany has become an economic superpower and* Deusche Mark *is one of the strongest currencies in the world.*

East and West Germany do not have diplomatic relations because Bonn refuses to recognise E. Germany as a foreign country. The preamble to W. German constitution calls for a unified Germany. Thus when the W. German Chancellor Helmut Kohl reiterated his country's goal of re-uniting the two German nations, Mr. Honecker stated that the "fatherland must stay divided" and that E. Germany was seeking peace not unity. Many Germans feel that Mr. Kohl is betraying the cause of German unity by receiving Mr. Honecker as a Head of Government.

Despite the deep ideological differences between the two German nations, the two leaders agreed to promote peace and disarmament within their respective military alliances. They also emphasised the German's special responsibility for ensuring that no war ever started on German soil. They called for improvement of bilateral relations too. In the joint communique issued after the meeting of the two leaders Mr. Honecker pledged to introduce new measures to permit more E. Germans to visit W. Germany. They also drew up three agreements on co-operation in Science & Technology, Environment Protection and Reactor Safety. They also agreed to expand bilateral trade.

The two Germanys though divided politically has a common goal — the revival of the German Spirit. *In the midst of this new mellowness in the East-West German relations they may each find their places as to separate states of the same nation and German* neutralism *may yet become real.*

GREECE

Cap: Athens; **Area:** 131,990 sq km; **Pop:** 9 884 000; **Lang:** Modern Greek; **Rel:** Christian; **Currency:** Drachma, US $1=143.73 Dr.

Greece or the Hellenic Republic occupies the southern part of the Balkan peninsula in the Mediterranean with the lonian Sea on the west and the Aegean Sea on the east.

In ancient times, Greece was the seat of democracy, learning and culture. Politically independent till the first century B.C., the Greek states succumbed to Roman might in the latter half of the first century B.C. Later they came under the Byzantine and Ottoman empires in succession until 1830 when Greece regained its freedom as a monarchic state. After many vicissitudes of fortune monarchy was abolished in Greece in 1974. It is a republic since.

Greece though till recently an agricultural country has now developed many industrial branches. In merchant shipping, Greece owns a surprisingly big tonnage. Tourism is Greece's biggest industry.

President: Christos Sartzetakis. **PM:** Andreas Papendreou.

Mission in India: Embassy of Greece, 16 Sunder Nagar, New Delhi- 110 003. Tel: 617800.

Consulate General: C/o. Stewarts and Lloyds of India Ltd., 41 Chowringhee Road, Calcutta-700 071. Tel: 24-8194.

Hon. Consul: Chordia Mansion, 739 Annasalai, Madras-600 002. Tel: 811566.

GRENADA

Cap: St. George's; **Area:** 344 sq km; **Pop:** 1,15,000; **Lang:** English and French-African patois; **Rel:** Christian; **Currency:** Eastern Caribbean Dollar. $. US $1=EC $2.70.

Grenada is the southernmost of British Windward Islands and includes *Southern Grenadines* (islands), the largest of which is *Carriacou*. It is a heavily wooded country with mountains of volcanic origin stretching from north to south. Grenada became independent in 1974.

The population is of mixed origin. European, Negro and Carib Indians.

Tourism is a growing industry but agriculture dominates the economy. The chief exports are cocoa, nutmegs and bananas. Other crops include coconuts, citrus fruits, sugar cane, cotton and spices.

Gov. Gen. Sir Paul Scoon **PM:** Herbert Blaize.

GUATEMALA

Cap: Guatemala City; **Area:** 1,01,889 sq km; **Pop:** 81,65,000; **Lang:** Spanish (official) and Indian dialects; **Rel:** Christian; **Currency:** Quetzal US $1=Q1.

Guatemala, a republic, is the third largest of the five central American states and has the largest population. Fifty per cent of the population is of Indian (Red) extraction, 45 per cent Ladino or of mixed European and Indian parentage. The Indians are the descendants of the builders of the great Maya civilization which was wiped out by the Spanish conquisitadors.

After remaining as a Spanish colony for about three centuries, Guatemala became a republic in 1939. Guatemala's claims to British Honduras (Belize) led to the rupture of diplomatic relations with Britain in 1963.

The soil is very fertile. Agriculture is the most important occupation. The principal crop is coffee. Other important export items are bananas, cotton, gum, sugar, maize, tobacco, fruits and beef.

President: Vinicio Cerezo.

GUINEA

Cap: Conakry; **Area:** 245,857 sq km; **Pop:** 53,01,000; **Lang:** French and 8 national languages; **Rel:** Islam and Tribal; **Currency:** Syli. US $1=26 Sylis.

Guinea is a former French overseas territory in West Africa.

Under the constitution of the Fifth (French) Republic, Guinea voted for secession and proclaimed itself an independent republic on October 2, 1958.

It exports coffee, honey, bananas, palm kernels, iron and aluminium ore. Guinea has probably the world's largest deposit of bauxite.

President: Col. Lansana Konte. **P.M:** Col. Diarra Traore.

GUINEA-BISSAU

Cap: Bissau; **Area:** 36,125 sq km; **Pop:** 8,44,000; **Lang:** Crioulo (Cape Verde-Guinea dialect) and Portuguese; **Rel:** Islam, Christian and Tribal; **Currency:** Peso. US $1=88.53 Pesos.

Guinea-Bissau, formerly Portuguese Guinea, is stuck like a wedge between Senegal in the north and Guinea to the east and south. The Atlantic sea borders it on the west. The land is part plain and part plateau.

The main occupation is agriculture. Swamp rice (grown in the coastal plains), coconuts, cassava, sweet potatoes and maize form the important food crops. The cash crops are groundnuts, coconuts and palm oil. Cattle raising is widespread.

Guinea-Bissau unilaterally declared independence in 1973. Portugal recognised its independence in 1974.

President: Maj. Joao Barnardo Vieira.

GUYANA

Cap: Georgetown; **Area:** 2,14,969 sq km; **Pop:** 9,36,000; **Lang:** English; **Rel:** Christian, Hindu and Islam; **Currency:** Dollar. US $1=4.15 G$.

Guyana (former British Guiana) lies on the north east coast of South America.

Guyana became a British possession in 1814 and an independent sovereign state within the Commonwealth of Nations on May 26, 1966.

The economy is based on agriculture. Sugar, rice and bauxite are the main exports. There are considerable deposits of gold and diamonds. Dense tropical forests cover much of the land.

President: Desmond Hoyle; **P.M:** Hamilton Greene.

Mission in India: High Commission of Guyana, 85 Poorvi Marg, Vasant Vihar, New Delhi-110 057. Tel: 674194/5.

HAITI

Cap: Port-au-Prince; **Area:** 27,750 sq km; **Pop:** 6 419 000; **Lang:** French (official), a Creole dialect is generally spoken; **Rel:** Christian and Voodoo; **Currency:** Gourde. US $1=5 Gourdes.

Haiti is part of the West Indies known as Hispaniola in the Atlantic lying between Cuba on the west and Puerto Rico on the east. Negroes form the majority of the population, the rest being mulattoes descended from former French settlers and slaves. The French colony proclaimed itself an independent republic in 1804.

Coffee is the chief agricultural product, others being sisal, cotton, raw sugar, cocoa and tobacco. Rice is grown for home consumption. Rum and other spirits are disitlled from molasses and exported. Bauxite is the chief mineral exported. Tourism is Haiti's second largest source of foreign exchange.

President: Six-man military council took over government after the ouster of Jean Claude Duvalier on February 8, 1986.

Mission in India: Consulate of Haiti, 186 Sarat Bose Road, Calcutta-700 029. Tel: 46-1164.

HONDURAS

Cap: Tegucigalpa, D.C.; **Area:** 112,088 sq km; **Pop:** 4 232 000; **Lang:** Spanish; **Rel:** Christian; **Currency:** Lempira also known as Peso. US $1=2 Lempiras.

Honduras is a republic of Central America lying between Nicaragua, El Salvador and Guatemala. It has a long northern coastline on the Caribbean and a narrow southern outlet to the Pacific.

Originally a Spanish colony, Honduras became independent in 1821. The country has gone through a series of dictatorships, military juntas, coups and counter-coups.

The chief crop is bananas which constitute 65 per cent of the country's exports. Coffee, cotton, maize and tobacco are also grown. Timber is abundant and cattle raising is a major occupation.

President: Jose Azcona Hoyo.

HONG KONG

Cap: Victoria, **Area:** 1051.7 sq km; **Pop:** 5 498 000; **Lang:** English and Cantonese; **Rel:** Confucianism and Buddhism; **Currency:** Hongkong Dollar. US $1=HK$ 7.80.

Lying along the south east coast of China, at the mouth of the Canton river, Hong Kong comprises Hong Kong island, Kowloon Peninsula, the New Territories and over 230 small islands. Hong Kong has been a British colony since 1843. The New Territories were acquired by Britain in 1898 by lease for 99 years. According to an agreement signed on 19 Dec. 1984, China would recover sovereignty over Hong Kong from 1 July 1997 and establish it as a Special Administrative Region.

The population is almost entirely Chinese with a sprinkling of other nationalities.

Hong Kong is one of the world's greatest transhipment ports. It specialises in light industries—cotton textile, plastics, electronic, photographic and optical equipments etc.

Gov. Gen: David Wilson

HUNGARY

Cap: Budapest; **Area:** 93,033 sq km; **Pop:** 10 786 000; **Lang:** Hungarian, Magyar; **Rel:** Christian; **Currency:** Forint, US $1=52.73 Forints.

Hungary is a socialist country in Central Europe. The eastern half of Hungary is mainly a great fertile plain, 'the Great Plain'. The west and the north are hilly.

Hungary had a stormy history being successively overrun by Huns, Magyars, Turks, Hungarians and Austrians. Hungary became an independent republic in 1918 and the Hungarian Socialist Republic in 1919.

Although an agricultural country in the past, industry has come to account for more than half of its total economy since the Second World War. Hungary exports engineering products, machine tools, motor vehicles and electrical and electronic goods. Chief imports are iron ore, coal, crude oil and consumer goods. More than 97 per cent of agricultural land is collectivised. Vineyards occupy around 186,000 hectares.

Chairman of the Persidential Council: Karoly Nemeth, **PM:** Karoly Grosz.

Mission in India: Embassy of Hungary, 2/50, Niti Marg, Chanakyapuri, New Delhi- 110 021. Tel: 371152.

ICELAND

Cap: Reykjavik; **Area:** 102,846 sq km; **Pop:** 239 000; **Lang:** Icelandic; **Rel:** Christian; **Currency:** Krona US $1=Kr. 42.92.

Iceland is an island close to the Arctic Circle in the North Atlantic. The Norwegian Sea is on the eastern side of Iceland. The warm Gulf Stream makes the winters mild. During the short cool summers, there is perpetual daylight for many weeks—making it an *island of the Midnight Sun*. The island has many geysers and hot springs. Natural hot water from Iceland's hot springs is pumped into towns, providing heat for offices and residences. Iceland has over 200 volcanoes, many of them still active.

The people of Iceland are the descendants of the dare-devil Vikings of Norway, the first of whom settled in Iceland in A.D. 874 and who are reputed to have first discovered Greenland (A.D. 982) and North America (A.D 1000). After having been independent till the 13th century it became part of Norway, and then passed under Danish rule. In 1941 the Althing (Parliament) voted for complete independence and a republic was formed on June 17, 1944.

Much of the land in Iceland is uncultivated. Potatoes and turnips are the major crops. Fishing industry is highly developed and forms the mainstay of Iceland's economy.

President: Vigdis Finn Bogadottir.

Mission in India: Embassy of Iceland, D- 35, Pamposh Enclave, New Delhi.

Consulate: Bombay— 38, Western India House, Sir P.M. Road.

INDIA

(See Part III)

INDONESIA

Cap: Jakarta; **Area:** 1,904,569 sq km; **Pop:** 165,153,600; **Lang:** Bahasa Indonesian; **Rel:** Islam; **Currency:** Rupiah. US $1 = 1097 Rupiahs.

Indonesia is an archipelago state consisting of over 13,000 (6000 inhabited) islands. The five main islands are Java, Sumatra, Kalimantan (Indonesian Borneo), Sulavesi and Irian Jaya (West New Guinea) with 30 smaller archipelagoes. The capital is Jakarta, the former city of Batavia, on the island of Java. The country is divided into 27 provinces.

The Japanese army occupied Indonesia from 1942 till 1945 after the surrender of the Dutch army. The Indonesian people proclaimed their independence on August 17, 1945. After a war of independence, the Netherlands transferred sovereignty to Indonesia on December 27, 1949.

One of the world's richest countries in natural resources, Indonesia has vast supplies of tin, oil and fairly big deposits of bauxite, copper, nickel, gold and silver. Agriculture is the main occupation of the people. Crops include rice, tobacco, coffee, rubber, pepper, kapok, coconut, palm oil, tea and sugarcane. Forest products are a major source of foreign exchange.

President: Gen. Soeharto.

Mission in India: Embassy of Indonesia, 50-A, Chanakyapuri, New Delhi- 110021. Tel: 602352.

Consulate: Bombay— Lincoln Annexe, 17, Altamount Road, Cumballa Hill.

Calcutta: Rajkamal Bhavan, 128 Rashbehari Ave, Calcutta-700 029. Tel: 46-8297.

IRAN

Cap: Teheran; **Area:** 1,648,000 sq km; **Pop:** 43 799 000; **Lang:** Persian (Farsi) **Rel:** Islam; **Currency:** Rial. US $1=97.21 Rial.

Iran (Persia) is a country of great antiquity, celebrated alike for its culture and military valour.

The last of the Pahlavi dynasty, Mohammed Reza, was forced to flee Iran in face of nation-wide revolt against him. In Feb. 1979 Ayatollah Khomeini, a highpriest of Islam, returned to Iran to guide its destiny.

Agriculture is the major occupation of the people. The chief agricultural products are wheat, barley, rice, fruits, wool and sugar beets. Sturgeon fish (from which caviar is obtained) in Caspian Sea provides an important source of income. Iran is one of the biggest oil producing regions in the Middle East. Emeralds and other gems are found in Khorassan and Kerman. Persian carpets, made on handlooms are famous the world over.

President: Ayatollah Hojatoleslam Ali Khamenei. **Prime Minister:** Mir Hussein Mussavi

Mission in India: Embassy of the Islamic Republic of Iran, 5, Barakhamba Road, New Delhi- 110001. Tel: 385491.

IRAQ

Cap: Baghdad; **Area:** 438446 sq km; **Pop:** 15 158 000; **Lang:** Arabic (official) and Kurdish; **Rel:** Islam; **Currency:** Iraqi Dinar. US $1=0.311 Dinar.

Iraq is the modern name for Mesopotamia (Meso - middle, Potamia- rivers), the land lying between the two great rivers, Euphrates and Tigris.

Iraq is one of the most ancient countries of the world and has produced a culture—the Mesopotamian Civilization —which has influenced European and Asian civilizations.

Petroleum is the most important sector of the economy. Iraq occupies the fifth place among oil-producing countries of the world. A programme of industrialisation is on with the oil revenues. Three quarters of the population depend on agriculture for their living. Iraq is the world's largest exporter of dates.

President: Sadam Hussein Takriti.

Mission in India: Embassy of Iraq, 169/170/171, Jor Bagh, New Delhi 110003. Tel: 618011.

Consulate: Bombay — Panorama, 203, Walkeshwar Road.

IRELAND

Cap: Dublin; **Area:** 70,282 sq km; **Pop:** 3,555,000; **Lang:** Irish and English; **Rel:** Christian; **Currency:** Irish Pound. US $1=1R£ 0.98.

Ireland or Eire, the Emerald Isle, is an island in the N. Atlantic lying west of Great Britain.

The independent state of Ireland consists of only 26 counties out of the 32 that make up the whole island. The 6 remaining counties form the area known as Northern Ireland which is directly administered by the United Kingdom.

Ireland emerges into history with the coming of St. Patrick in 432 A.D. and the spread of Christianity. An invasion led by Norman barons during the 12th century led to a period of almost eight centuries of British rule in Ireland. In 1921 Great Britian recognised Ireland as a more or less independent unit within the Commonwealth and the country became known as the Irish Free State. In 1932 the Fianna Fail party under Eamon de Valera came to power and gradually removed the last vestiges of allegiance to the British Crown. In 1937 a new constitution was adopted which made Ireland effectively a republic. In 1949 Ireland formally declared itself a Republic and ceased to be a member of the Commonwealth. In 1973 the country joined the EEC.

Ireland had formerly a mainly agricultural economy. However, in recent decades industrial output has expanded rapidly due to increased foreign investment. Exports make up 50% of GNP, the main items being dairy products, food and beverges, machinery and live animals.

President: Patrick John Hillery; **PM:** Dr. Garret Fitzgerald.

Mission in India: Embassy of Ireland, 13 Jor Bagh, New Delhi- 110 003. Tel: 617435.

Consulate: Bombay — Royal Bombay Yacht Club Chambers, Apollo Bunder, Bombay-400 039.

ISRAEL

Cap: Jerusalem; **Area:** 20,325 sq km; **Pop:** 4,216,000; **Lang:** Hebrew (official) and Arabic; **Rel:** Judaism; **Currency:** Shekel. US $1=783 Shekel.

A republic of the Middle East (West Asia), Israel is surrounded on three sides by Arab countries.

The republic occupies the minor portion of ancient Palestine.

On November 29, 1947, the UN partitioned Palestine between the Jews and the Arabs. A new Zionist state called Israel was proclaimed in the Jewish area of Palestine on May 15, 1948.

Israel has developed both agriculture and industry in the little land allotted to it with considerable expertise and efficiency. They have literally made the deserts bloom. Kibbutzim (collective cultivation), irrigation schemes and reclamation of desert-land formed the main features of agricultural development. Citrus fruits are the main exports. Wine-making is an extensive industry. In diamond-cutting, Israel comes next only to Belgium. The Valley of Jordan and the Dead Sea yield rock salt, sulphur and potash.

President: Chaim Herzog, **P.M:** Yitzhak Shamir.

ITALY

Cap: Rome; **Area:** 301,253 sq km; **Pop:** 56,724,000; **Lang:** Italian; **Rel:** Christian; **Currency:** Lira US $1=1500 Lire.

The Italian Republic occupies the long peninsular area in Europe extending from the Alps into the Mediterranean Sea. The islands of Sicily, Sardinia, Elba and Capri in the Mediterranean belong to Itally.

Italy, once the headquarters of the great Roman Empire, disintegrated into many petty states during the later Middle Ages. Modern Italy began to develop when King Victor Emmanuel II of Savoia became King. The Vatican was recognised as an independent state on February 11, 1929. On April 28, 1945 Mussolini, the Fascist dictator, was put to death. Consequent on a referendum on June 2, 1946, Italy voted for a republic. The King laid down his kingship.

Since World War II, Italy has revolutionised agricultural production. The chief crops are grapes, wheat, sugarbeet, fruit and vegetables. Italy is among the highly industrialised countries of the world. Its main products are electrical, mechanical and electronic gadgets, automobiles and chemicals. Italy has a big merchant marine fleet with a gross tonnage of over 11 million, and air fleet with the capacity of over 12 billion passengers/km and over 1 billion tons/km.

President: Francesco Cossiga, **P.M:** Giovanni Goria.

Mission in India: Embassy of Italy, 13, Golf Links, New Delhi- 110 003. Tel: 618311.

Consulates: Bombay — Consulate General of Italy, Vaswani Mansion, 120, Dinsha Wachha Road.

Calcutta: 3, Raja Santosh Road, Calcutta-700 027. Tel: 45-1411.

Madras: 5th Floor, Sudarshan Bldg. No. 86, Chamiers Road.

IVORY COAST

Cap: Abidjan; **Area:** 322,462 sq km; **Pop:** 9,474,000; **Lang:** French (official) and Tribal; **Rel:** Islam and Christian; **Currency:** Franc CFA. US$1=523.75 F CFA.

The Ivory Coast is bordered by Mali and Burkina Faso in the north, Ghana in the east, the Gulf of Guinea in the south, and Liberia and Guinea in the west.

The Republic of Ivory Coast, once an overseas territory of France, became independent in August 1960.

Agriculture, forestry and fishing employ 90 per cent of the population. Ivory Coast is the third most important coffee producer in the world and the most important African producer of timber. Cocoa, bananas and pineapples are the other important cash crops.

President: Felix Houphouet-Boigny.

JAMAICA

Cap: Kingston; **Area:** 10,991 sq km; **Pop:** 2,290,000; **Lang:** English; **Rel:** Christian; **Currency:** Jamaican Dollar US $1=J $ 5.17.

Jamaica, an island in the Greater Antilles group of the West Indies, is situated in the Caribbean Sea, 144 km south of Cuba. The climate varies with altitude, being tropical at sea-level and temperate in the mountain area.

Jamaica was visited by Columbus in 1494 and ruled by Spain till 1655 when Britain occupied it. In 1962 Jamaica became fully independent as a member of the Commonwealth.

Agriculture, mining and tourism form the backbone of the economy. The dominant crop is sugar, with molasses and rum as important by-products. Bananas, citrus fruits and coconuts are also grown. Jamaica is the world's second largest producer of bauxite and alumina. Other industries are cement, tobacco and consumer goods.

Head of State. Queen Elizabeth II. **Gov. Gen:** Florizel Augustus Glasspole. **P.M:** Edward Seaga.

JAPAN

Cap: Tokyo; **Area:** 377,765 sq km; **Pop:** 121,000,000; **Lang:** Japanese; **Rel:** Shinto and Buddhism; **Currency:** Yen. US $1=143 Yen.

Japan consists of four main islands, Honshu (Mainland), Hokkaido, Kyushu and Shikoku and a number of smaller islands of which Okinawa is one. Japan is separated from the Soviet Union and Korea by the Sea of Japan and from China by the East China Sea. Japan has a deeply indented coastline measuring 16,654 miles. Most important ports are Yokohama, Kobe, Nagoya and Osaka.

Main Islands of Japan

Name	Area (sq km)	Major city.
Honshu	22,414	Tokyo
Hokkaido	78,073	Sapporo
Kyushu	36,555	Kitakyushu
Shikoku	18,257	Matsuyama

Legend has it that the Japanese Empire was founded by Emperor Jimmu in 660 B.C. However, there was no centralised authority till A.D. 1868 when Emperor Meiji united the whole of Japan under his ruie. Japan had little trade relations with foreign countries until Commodore Perry of USA in 1854 persuaded the Japanese to enter into a trade treaty with USA. In 1889 Japan had its first constitution. Japan's victory in the Russo-Japanese War of 1904-05 raised her prestige among European powers.

Rice, the staple food of Japan, is cultivated in half the area of arable land. Other crops are wheat, barley, potatoes and tobacco. Except for limestone and sulphur, Japan is poor in minerals and Japanese industry is heavily dependent on imported raw materials and fuel. Japan is one of the most industrially advanced countries of the world. The principal industries are motor vehicles, iron and steel, chemicals, textiles (cotton, wool, silk and synthetics),fishing, ceramics, precision instruments, fertilizers, machinery and shipbuilding. Japan has evolved an extensive fishing industry.

Tokyo the Costliest

At least 33 major cities in the world are more expensive than New York because of the plunging value of the U.S. dollar, a global cost-of-living survey reported in 1987.

Tokyo tops the list and is now twice as costly as New York, while some other cities are 50 per cent more expensive, says Business International, a consulting company. Figures as of Jan. 31 1986 make Tokyo the world's most expensive city — at 191 points or 91 per cent above New York's base of 100 points. In Europe, the cities more expensive than New York include: Geneva (134), Zurich (131), Vienna (127), Copenhagen (125), Oslo (123), Helsinki (122), Munich (117), Hamburg (117), Berlin (116), Paris (116), Dusseldorf (115), Frankfurt (115), Milan (114), Lyon (113), Rome (113), Dublin (113), Amsterdam (108), Brussels (108) and Stockholm (105).

Surveys are based on a weighted index for costs of a food shopping basket, alcoholic beverages, household supplies, personal care items, tobacco, utilities, clothing, domestic help, recreation, entertainment, and transportation. The findings are widely used by companies in paying cost-of-living compensation to expatriate personnel.

Head of State: Emperor Hirohito, **P.M:** Noburu Takeshita.

Mission in India: Embassy of Japan, Plot No. 4 & 5, 50G Shantipath, Chanakyapuri, New Delhi- 110 021. Tel: 604071.

Consulates: Bombay — Babasaheb Dahanukar Marg, Cumbala Hill, Bombay-400 026.

Calcutta: 12, Pretoria Street, Calcutta-700 071. Tel: 44-2241.

Madras: 60 Spur Tank Road, Chetput, Madras-600 031. Tel: 665594.

JORDAN

Cap: Amman; **Area:** 97,740 sq km; **Pop:** 3,375,000; **Lang:** Arabic; **Rel:** Islam; **Currency:** Dinar. US $1=JD 0.360.

A constitutional monarchy in south-west Asia, Jordan was popularly known as Trans-Jordan till 1949, when the popular name was changed to the Hashemite Kingdom of Jordan. The population is chiefly Arab of whom the majority are Muslims. In 1946, Jordan became an independent state.

Jordan is largely a desert area, but the western portion is fertile and produces citrus fruits, wheat, barley, lentils, and water melons. Phosphates make up the country's most important export item, but tourism remains its main foreign exchange earner.

Head of State: King Hussein Ibn Talal **P.M:** Zaid Rifai.

Mission in India: Embassy of Jordan, 35, Malcha Marg, Chanakyapuri, New Delhi-110 021. Tel: 3013495.

KAMPUCHEA

Cap: Phnom-Penh; **Area:** 181,035 sq km; **Pop:** 7,149,000; **Lang:** Khmer; **Rel:** Theravada Buddhism; **Currency:** Riel.

The People's Republic of Kampuchea was originally called *Cambodia* and for some time— between Oct. 1970 and May 1975—was known as Khmer Republic.

Kampuchea is an undeveloped country with 50 per cent of its land covered by virgin forests. Rice occupies 80 per cent of the cultivated area. Cattle rearing and fishing are fairly well developed. The forests are rich in valuable timber. Iron, copper, manganese and gold are also found.

President: Heng Samrin, **P.M:** Hunsen.

Mission in India: Embassy of the People's Republic of Kampuchea, E 23, Defence Colony, New Delhi-110 024. Tel: 693417.

KENYA

Cap :Nairobi; **Area:** 582,646 sq km; **Pop:** 19,761,000; **Lang:** National - Kiswahili; official - English; **Rel:** Tribal, Christian and Islam; **Currency:** Shilling. US $1=16.2 Shilling.

Formerly a British colony, Kenya became an independent republic within the Commonwealth in 1964.

Kenya's prosperity rests largely on agricultural products. The chief cash crops are coffee, tea, sisal, cereals, wattle, and pyrethrum. Kenya is one of the few African countries with an important dairy industry. Mineral industries are being organised. Tourism has expanded considerably.

President: Daniel Arap Moi.

Mission in India: High Commission of Kenya, 66, Vasant Marg, Vasant Vihar, New Delhi-110 057. Tel: 672303.

KIRIBATI

Cap: Tarawa; **Area:** 861 sq km; **Pop:** 60302; **Lang:** Gilbertese and English; **Rel:** Christian; **Currency:** Dollar.

Gilbert Islands, till recently a British colony, became independent under the name Kiribati (pronounced Kiribas) on July 11, 1979.

These islands, spread over a vast area in the Western Pacific, number around 33. All islands except Ocean Island (Banaba) are low atolls with coconuts, pandanus and bread fruit forming the main vegetation. The population is Micronesian and Polynesian. Agriculture and fishing are the main occupations. Ocean Island has high grade phosphatic deposits which are being mined and exported. Copra is the other major export item.

President: Ieremia Tabai.

KOREA (North)

Cap: Pyongyang; **Area:** 1,20,538 sq km; **Pop:** 1,96,30,000; **Lang:** Korean; **Rel:** Buddhism and Confucianism; **Currency:** Won. US $1=0.94 Won.

The Democratic People's Republic of Korea occupies the northern part of the Korean peninsula.

During the Second World War, America occupied South Korea and Russia,North Korea. At the Potsdam Conference, the 38th parallel of latitude was recognised as the line of division between the occupation areas of Russia and America. North Korea was formed into the Democratic People's Republic of Korea on Sept. 9, 1948.

All industries are nationalised and land distributed among the peasants. Agriculture has since been collectivised. Industrial development has concentrated on heavy industry, electricity, metallurgy, machinery and chemicals. The country is rich in coal and iron and many non-ferrous metals. It is one of the five leading countries of the world in the production of tungsten, graphite and magnestie.

President: Kim Il Sung, **PM:** Kang Song San.

Mission in India: Embassy of the Democratic People's Republic of Korea, 42-44 Sunder Nagar, New Delhi-110 003. Tel: 617140.

KOREA (South)

Cap: Seoul; **Area:** 98,859 sq km; **Pop:** 4,03,09,000; **Lang:** Korean. **Rel:** Buddhism, Christianity and Confucianism; **Currency:** Won. US $1=843.80 Won.

The Republic of Korea forms the southern part of the Korean peninsula. The Republic of Korea was formally proclaimed on August 15, 1948.

Agriculture is the mainstay of the economy. The chief crop is rice. Wheat, barley and potatoes are also cultivated. Fish is both an export item and a source of food. There are substantial coal deposits. Other minerals include iron, tungsten, graphite and fluorite. Of late they have made big leaps in industry — textiles, electronics, steel and petrochemicals.

President: Gen. Chun Du Hwan; **P.M.:** Kim Chung-Yul.

Mission in India: Embassy of the Republic of Korea, 9 Chandragupta Marg, Chanakyapuri, New Delhi-110 021. Tel: 601601.

KUWAIT

Cap: Kuwait City; **Area:** 17,656 sq km; **Pop:** 17,03,000: **Lang:** Arabic and English; **Rel:** Islam; **Currency:** Dinar. US $1=KD 0.307.

Kuwait, a small Arab state, is on the north western coast of the Persian Gulf between Iraq and Saudi Arabia. Kuwait is one of the richest countries in the world.

Kuwait was traditionally under the rule of the Al-Saban dynasty, founded in 1756. It became an independent state on June 19, 1961.

Kuwait is the world's fourth largest producer of petroleum.

Amir: Shaikh Jabir al-Ahmad al-Jabir al-Sabah. PM: Shaikh Saad al-Abdullah al-Salem al-Sabah.

Mission in India: Embassy of Kuwait, 5-A, Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 600791.

LAO P.D.R.

Cap: Vientiane; **Area:** 2,36,800 sq km; **Pop:** 3,600,000; **Lang:** Lao & Tribals; **Rel:** Buddhism; **Currency:** Kip. US $1=K35.

Laos–Lao People's Democratic Republic — occupies a strategic position in south east Asia. Laos became an independent republic in 1949.

The chief products are rice, tobacco, cotton, benzoin, shellac, tin, lead, zinc and teak wood. Other industries exist but on a very small scale.

President: (Ag.) Phoumi Vongvichit; **PM:** Kaysone Phomvihane.

Mission In India: Embassy of the Lao P.D.R., 20 Jor Bagh, New Delhi-110 003. Tel: 616187.

LEBANON

Cap: Beirut; **Area:** 10,400 sq km; **Pop:** 26,44,000; **Lang:** Arabic; **Rel:** Christianity and Islam; **Currency:** Pound. US $1=£Leb. 18.75.

The Republic of Lebanon occupies a strip of land along the Mediterranean coast between Syria and Israel. Lebanon became independent in 1941.

Primarily an agricultural country, Lebabon produces olive oil, grain and fruits. The chief industries are oil refining, food processing and cement. Tourism is a valuable source of income.

President: Amin Gemayel. **PM:** Selim Hoss.

Mission in India: Embassy of Lebanon, 10, Sardar Patel Road, New Delhi-110 021. Tel: 3013174.

Consulate: Calcutta– 27A, Camac street, Calcutta-700 016. Tel: 44-7867.

LESOTHO

Cap: Maseru; **Area:** 30,355 sq km; **Pop:** 14,81,000; **Lang:** English and Sesotho; **Rel:** Christian and Tribal; **Currency:** Loti (Plural Maloti). US $1=2.06 Maloti.

The Kingdom of Lesotho is an enclave

Fury in Beirut as the Lebanese Pound Falls: Looters attacked a currency exchange shop in West Beirut during a protest over the decline in value of the Lebanese pound, which lost 71 per cent of its value in 1987, sending prices of the basic goods that Lebanon imports sharply higher. Several hundred demonstrators marched on Lebanon's central bank, and protesters blocked the road to Beirut airport with burning tires. The bank suspended trading in the currency to try to stop speculation.

within the Republic of South Africa. Lesotho was a British protectorate under the name Basutoland. It became independent as Lesotho on Oct. 4, 1966.

The principal occupation is agriculture. Lesotho possesses water and hydro-electric resources of great potential. Live-stock, diamonds, wool and mohair are the main exports.

Head of the State: King Moshoeshoe. **PM:** Chief Leabua Jonathan.

LIBERIA

Cap: Monrovia; **Area:** 1,11,369 sq km; **Pop:** 21,23,000; **Lang:** English and Tribal; **Rel:** Christian. **Currency:** Dollar. US $1=1 Liberian $.

Liberia lies on the Atlantic coast of Africa. It was founded in 1822 and declared a republic on July 26, 1847.

About 90 per cent of the population is engaged in agriculture, much of it at subsistence level. Main crops are cassava, coffee, cocoa and palm oil. Iron ore and rubber are the main exports.

President: Maj. Gen. Samuel Kanyon Doe.

Mission in India: Embassy of the Republic of Liberia, Plot No. 79, Poorvi Marg, Vasant Vihar, New Delhi-110 057.

Consulate General: 186 Sarat Bose Road, Calcutta-700 029. Tel: 46-1164.

LIBYA

Cap: Hun; **Area:** 17,59,540 sq km; **Pop:** 35,00,000; **Lang:** Arabic; **Rel:** Islam; **Currency:** Dinar. US $1=LD 0.30.

An Arab state on the north coast of Africa, Libya changed its name to 'The Socialist People's Libyan Arab Jamahiriya' in 1977. 'Jamahiriya' means 'State of the masses'.

Formerly an Italian colony, Libya became an independent state in 1949. The capital was shifted from Tripoli to Hun in 1987.

The main agricultural products are dates, olives, almond and citrus fruits. Fishing, tobacco processing, dyeing and weaving are the important industries. Oil was discovered in 1957 and today Libya is one of the leading producers of oil in the world.

Leader of the Great Ist of September Revolution: Col. Muamar Al-Qudhafi; **P.M.:**

Jadallah Abu-al-Talhi.

Mission in India: People's Bureau of the Socialist People's Libyan Arab Jamahiriya, 22, Golf Links, New Delhi-110 003. Tel: 697717.

LIECHTENSTEIN

Cap: Vaduz; **Area:** 160 sq km; **Pop:** 26,512; **Lang:** German; **Rel:** Christian; **Currency:** Swiss Franc.

Liechtenstein is a small state on the upper Rhine, between Austria and Switzerland. It measures 24 km from north to south and 9 km from east to west. It became an independent kingdom in 1866.

The economy is mainly industrial. Chief industries are machines and tools, textiles, foodstuffs and leatherware.

Head of State: Prince Franz Josef. **PM:** Hans Brunhart.

LUXEMBOURG

Cap: Luxembourgville; **Area:** 2586 sq km; **Pop:** 3,66,000; **Lang:** French, (English and German are freely spoken); **Rel:** Christian, 95% Roman Catholics); **Currency:** Luxembourg Franc (LF).

Luxembourg is a small state lying in between Germany, Belgium and France. It is a Grand Duchy.

Its independence was confirmed by the Treaty of London in 1867.

As a member of the European Economic Community, the Benelux, the European Steel and Coal Community and the Euratom, Luxembourg is a highly industrialised state. Its iron deposits form the basis of a big steel industry, which accounts for 70 per cent of the country's exports. Agriculture occupies only 10 per cent of the population.

Head of the State: Grand Duke Jean. **President:** Jacques Santer.

Mission in India: Consulate General of the Grand Duchy of Luxembourg, 2 Panchsheel Marg, Chanakyapuri, New Delhi-110 021. Tel: 3015855.

MACAO

Cap: Macao; **Area:** 15.5 sq km; **Pop:** 2,61,680; **Lang:** Portuguese and Cantonese; **Rel:** Confucianism; **Currency:** Pataca. HK $100=103 Patacas.

Macao or Macau is a tiny Portuguese possession in South China, at the mouth of the Sinkiang river. The territory consists of the Macao peninsula and the adjoining islands of Taipa and Coloane. China has permitted Macao to continue as an independent territory mainly because of the big entrepot trade it commands. Macao is a free market for gold and an infamous centre of smuggling and gambling.

The population is almost entirely Chinese. Industry, once restricted to matches and fireworks, now includes plastics, textiles, cameras, binoculars and such other consumer items. Cultivation is sparse. Only rice and vegetables are grown.

Governor: Cdr. Vsco Almeida e Costa.

MADAGASCAR

Cap: Tananarive; **Area:** 5,87,341 sq km; **Pop:** 97,31,000; **Lang:** Malagasy and French; **Rel:** Islam; **Currency:** Franc. US $1=719.84 FMG.

Madagascar, formerly a French overseas territory, is a large island about 500 km long off the coast of Mozambique. It became independent in 1960.

The economy is essentially agricultural. Rice is the staple food and coffee the chief export. Tobacco, cloves and vanilla are also cultivated. Large herds of cattle are raised. Mineral deposits include graphite, mica, nickel and copper. Since 1960, chromite is being mined.

President: Comdr. Didier Ratsiraka; **PM:** Lt. Col. Desire Rakotoarijaona.

MALAWI

Cap: Lilongwe; **Area:** 1,18,784 sq km; **Pop:** 67,88,000; **Lang:** English and Chichewa; **Rel:** Tribal and Islam; **Currency:** Kwacha. US $1=K1.64.

Malawi is bounded by Tanzania, Mozambique and Zambia. Lake Nyasa lies on its eastern side. A land of lakes and mountains. Malawi has infinite beauty and is considered a tourists' paradise. Malawi, formerly Nyasaland, became independent in 1966.

Poor in resources, Malawi's agriculture is still at a subsistence level. The chief cash crops are tea and tobacco, sugar and cotton.

President: Hastings Kamuzu Banda.

MALAYSIA

Cap: Kuala Lumpur; **Area:** 3,30,434 sq km; **Pop:** 1,52,04,000; **Lang:** Bahasa Malaysia; **Rel:** Islam. **Currency:** Ringgit. US$1=2.4 Ringgit.

Malaysia is a federation of 13 states comprising Johor, Kedah, Kelantan, Melakaa, Nigeri Sembilan, Pahang, Perlis, Pulau Pinang, Sabah, Sarawak, Selangor and Terengganu. Each state has its individual appeal and characteristics.

Malaysia has a multi-racial populace. Total population is about 15 million consisting of 55 per cent Malays, 33.4 per cent Chinese, 10.1 per cent Indians and 1.4 per cent others.

Malaysia achieved its independence in 1957.

Malaysia is the world's largest producer of rubber, tin and palm oil. Malaysia is also the world's leading exporter of pepper and timber. Other crops of significance are coconut, vegetables, pineapples, coffee, tea, cocoa, etc.

Iron ore, gold, ilmenite and bauxite are the major mineral resources. The petroleum industry in Malaysia is becoming significantly important to the economy of the nation. Leading industries are food products, tobacco, wood products, electrical goods, textiles, chemical products, construction goods, non-metallic products, transport equipment and the processing of agricultural products from estates (eg. rubber, palm oil).

Supreme Head of State: Sultan Mahmood Iskandar Ibni Al-Marhum Sultan Ismail. **P.M.:** Dr. Mahathir bin Mohamad.

Mission in India: High Commissioner of Malaysia, 50-M Satya Marg, Chanakyapuri, New Delhi-110 021. Tel: 601291.

Madras: Hon. Consul, No. 23, Khader Nawaskhan Road, Madras-600.

MALDIVES

Cap: Male; **Area:** 298 sq km; **Pop:** 1,68,000; **Lang:** Divehi; **Rel:** Islam; **Currency:** Rufiyaa (Maldivian Rupee).

Maldives (literally, islands of Male–from the Sanskrit 'dweep' meaning island) is an archipelago in the Indian Ocean, to the southwest of India and west of Sri Lanka. The archipelago consists of 12 coral atolls and about 2000 small islands. It extends for about 300 miles north to south.

The Maldives attained independence on July 26, 1965. It became a republic in November, 1968.

Most of the people are seafarers. Coconuts, fruits and millet are the main crops. The chief occupation is fishing and production of processed fish is the main industry.

President and P.M.: Maumoon Abdul Gayoom.

MALI

Cap: Bamako; **Area:** 12,39,998 sq km; **Pop:** 78,25,000; **Lang:** French (official); **Rel:** Islam and Tribal; **Currency:** Mali Franc. US $ 1=MF 726.25.

Mali is a land-locked state in West Africa. It was proclaimed an independent republic in 1960.

The country is poor in natural resources. Only about 20 per cent of the land is cultivable. The main crops are rice, millet and groundnuts. Livestock-raising is important and the processing of hides and skins remains the only industry. There is extensive river-fishing and good export trade in dried and smoked fish.

President and P.M.: Moussa Traore.

MALTA

Cap: Valletta; **Area:** 316 sq km; **Pop:** 3,80,000; **Lang:** Maltese and English; **Rel:** Christian; **Currency:** Lira Malija. US $1=Lm 1.95.

Malta is an island in the central Mediterranean Sea, 58 miles from Sicily and about 180 miles from the African coast. This state also includes the adjoining islands of Gozo and Comino. Malta became an independent republic in 1964.

The rocky country has no natural resources. Textiles, footwear, rubber products and plastics are exported. Agricultural products include onions, potatoes and tomatoes. Tourism, however, remains the island's major industry.

President: Agatha Barbara. **P.M.:** Eddie Fenech Adami.

MAURITANIA

Cap: Nouakchott; **Area:** 10,30,700 sq km; **Pop:** 18,32,000; **Lang:** Arabic and French (official); **Rel:** Islam; **Currency:** Ouguiya. US $1=67.16 Ouguiya.

The Islamic Republic of Mauritania is on the Atlantic coast of the West African bulge.

Mauritania, a former French overseas territory, became autonomous in 1958 and fully independent in 1960.

The population is traditionally nomadic rearing cattle and sheep. Fishing is important. Important deposits of iron and copper have been sighted and are being exploited. Oil prospecting is going on.

President and P.M.: Lt. Col. Mohamed Khouna Ould Haydalla.

MAURITIUS

Cap: Port Louis; **Area:** 2040 sq km; **Pop:** 10,31,000; **Lang:** English, French and Hindustani; **Rel:** Hinduism, Christianity and Islam; **Currency:** Rupee. US $1=Rupees 16.84.

Mauritius lies about 500 miles east of Madagascar in the Indian Ocean.

It became an independent state on March 12, 1968.

The island is an extreme example of one-crop economy, sugarcane being the only crop that supports the economy. Molasses, tea and tobacco are exported. Tourism is a highly developed industry.

Head of State: Queen Elizebeth II. **Gov. Gen:** Sir Veera Swamy Ringadoo. **P.M.:** Aneerood Jugnauth.

Mission in India: High Commission of Mauritius, 5 Kautilya Marg, Chanakyapuri, New Delhi-110 021. Tel: 3011112.

MEXICO

Cap: Mexico City; **Area:** 19,72,547 sq km; **Pop:** 7,70,40,000; **Lang:** Spanish; **Rel:** Christian; **Currency:** Peso. US$1=530 Pesos.

A federal republic of middle America, Mexico became an independent state in 1821.

Mexico is not well suited for agriculture so it is obliged to import food. The important agricultural products are maize, rice, wheat and sugar. Sea fishing is also important as an occupation. Mexico is the world's leading producer of silver, sulphur and fluorite. Other minerals include coal, zinc, lead, manganese, bauxite and uranium. In recent years, Mexico has become one of the main producers and exporters of petroleum.

President: Miguel de la Madrid Hurtado.

Mission in India: Embassy of Mexico, 10 Jor Bagh, New Delhi-110 003. Tel: 697991.

MONACO

Cap: Monaco; **Area:**1.95 sq km; **Pop:** 27,063; **Lang:** French & Monegasque; **Rel:** Christian; **Currency:** Franc.

Monaco is a sovereign principality on France's south-eastern Mediterranean coast.

The principality is a series of connected towns–Monaco-Ville, La Condamine, Fontvieille and Monte Carlo with its casinos, opera house, grand hotels, shops and villas.

Monaco is a fashionable pleasure resort visited by thousands of tourists every year. Its main attractions are the casinos and its international motor sports–the Monte Carlo Rally and the Monaco Grand Prix. Tourism, gambling, taxes and tobacco monopoly are its main sources of income.

There are a number of light industries.

Head of State: Prince Rainier III.

Mission in India: Consulate General of Monaco, 114, Sundar Nagar, New Delhi-110 003. Tel: 623193.

MONGOLIA

Cap: Ulan Bator; **Area:** 15,65,000 sq km; **Pop:** 18,51,000; **Lang:** Mongolian; **Rel:** Buddhism and Lamaism; **Currency:** Tugrik. US$1=3.36 Tugrik.

The Mongolian People's Republic lies in Central Asia with the Soviet Union to the north and China to the south, east and west. It became an independent state in 1921.

Livestock-raising is the principal occupation and comprises horses, oxen, sheep, goats and camels. The herdsmen are organised in collectives. State farms, of which there were 49 in 1980, practise large-scale agriculture. Minerals include coal, flourspar, tungsten, tin and copper.

Chairman of the Presidium: Dr. Jambyn Batmunkh. **P.M.:** D. Sodnom.

Mission in India: Embassy of the Mongolian People's Republic, 34, Archbishop Makarios Marg, New Delhi-110 003. Tel: 618921.

MONTSERRAT

Cap: Plymouth; **Area:** 102 sq km; **Pop:** 12,074; **Lang:** English and Patois; **Rel:** Christian; **Currency:** Dollar.

Montserrat, like Antigua, is one of the

Leeward Islands. Its population is of mixed European-Negro origin. Europeans proper form a minority. Agriculture is the mainstay of the people. Sea island cotton and vegetables like tomatoes form the main exports.

It is a British Associate State with full internal autonomy.

Gov: A.C. Watson; **Chief Minister:** Dr. J.A. Osborne.

MOROCCO

Cap: Rabat; **Area:** 8,00,000 sq km; **Pop:** 2,28,48,000; **Lang:** Arabic; **Rel:** Islam; **Currency:** Dirham. US $1=9.95 DH.

The Kingdom of Morocco, which is a constitutional, Monarchy, is situated at the extreme northwest of Africa. The Atlas mountains stretch across Morocco.

Morocco recovered its political independence from France on March 2, 1956, and gained control over the Northern Spanish zones in 1958.

Primarily an agricultural country, Morocco produces cereals, including barley, wheat and corn. Vineyards are abundant and dates form a regular crop. Livestock raising is important and fishing is well-developed. The most important mineral extracted is phosphate, of which Morocco remains a world supplier. Other minerals are iron ore, coal, lead and manganese

Head of State: King Hassan II.

Saharan Republic

The Sahrawi Arab Democratic Republic (SADR) set up by the Polisario in Western Sahara is a territory that came under Morocco's control after Spain withdrew from there.

Algeria actively supported the Polisario-led struggle for its independence.

The new Republic is headed by President Mohammed Abde Aziz (who is also Secretary-General of the Polisario Front) and P.M. Mohammed Lamine.

India accorded recognition to the new government on Oct. 1, 1985.

As a sequel Morocco broke diplomatic relations with India.

Mission in India: Embassy of Morocco, 33 Golf Links, New Delhi-110 003.

MOZAMBIQUE

Cap: Maputo; 783,030 sq km; **Pop:** 13,693,000; **Lang:** Portuguese and Bantu; **Rel:** Islam and Christianity; **Currency:** Metical (Plural: Meticais). US $1=44.87 Meticais.

Mozambique is the old Portuguese East Africa. Mozambique Channel of the Indian Ocean bounds it in the east. The majority of the population belongs to the *Bantu* tribe.

The economy is based on agriculture. The major cash crops are cashewnuts, sugar, cotton, and sisal. Maize, bananas, rice and coconuts are also grown. Considerable mineral resources exist although only coal, diamonds and bauxite are now exploited. Mozambique has two-thirds of the world's known reserves of tantalite and is the second largest producer of beryl.

President: Joaquim Chissano; **P.M.:** Mario da Graca Machungo.

NAMIBIA

Cap: Windhoek; **Area:** 824,292 sq km; **Pop:** 1,507,000; **Lang:** English & Afrikaans; **Rel:**. Christian and Tribal; **Currency:** Rand.

Namibia, formerly known as South West Africa, lies on the Atlantic coast of Africa.

The biggest population group is *the Owambos.*

Diamonds are Namibia's most valuable economic asset followed by copper, zinc, lead, germanium and manganese. Stock- breeding is important; cattle, sheep and goats abound. Fishing is a supplementary source of food and income.

South Africa is a harbouring a puppet govt. in Namibia inspite of international opinion againist it expressed by repeated UN resolutions.

NAURU

Cap: Nauru; **Area:** 20.9 sq km; **Pop:** 8421; **Lang:** English and Nauruan; **Rel:** Christian; **Currency:** Dollar.

Nauru is a small island in the central Pacific. It is an oval-shaped coral island of approximately 12 miles in circumference, surrounded by a reef which is exposed at low tide. Nauru became an independent republic on Jan.31, 1968.

About four-fifths of the area of Nauru is phosphate-bearing rock. Phosphates form the only export.

President: Kennan Adeang.

Mission in India: Consulate General of the Republic of Nauru, C-5/4, Safdarjung Development Area, New Delhi-110 016. Tel: 667977.

NEPAL

Cap: Kathmandu; **Area:** 147,141 sq km; **Pop:** 16,107,000; **Lang:** Nepali; **Rel:** Hinduism and Buddhism; **Currency:** Rupee. US$1=19 Rupees.

Nepal is a kingdom in the southern slope of the Himalayas, situated between India and China.

Nepal is rich in forest wealth and quartz deposits. The principal exports are jute, rice, cattle, hides, wheat and herbal drugs.

King: Birendra Bir Bikram Shah Dev. **P.M:** Marich Mansingh Shrestha.

Mission in India: Royal Nepalese Embassy, Barakhamba Road, New Delhi- 110 001. Tel: 381484.

Consulate: 19, Woodlands, Sterndale Road, Calcutta-700 027. Tel: 45-2024.

NETHERLANDS

Cap: Amsterdam, Seat of Govt: The Hague; **Area:** 41,160 sq km; **Pop:** 144,456,00 ; **Lang:** Dutch; **Rel:** Christian; **Currency:** Guilder. US $1=2.50 Guilders.

The Kingdom of the Netherlands comprises of the Netherlands and Antilles. The country is plainland with an average height of 37 ft. above sea-level. Much of the land, however, is below sea-level and is protected by dykes, which extend for some 1500 miles.

Agriculture has been mechanised and developed. Foodstuffs form the largest industrial sector. Dairy products account for one-quarter of exports. Other major industries include chemicals, metallurgy, machinery and electrical goods. Amsterdam is famous as a world centre for diamonds, precious metals and art treasures.

Head of State: Queen Beatrix. **P.M.:** R. F. M. Libbers.

Mission in India: Embassy of Netherlands, 6/50 F, Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 609571.

Hon. Consul, Chordia Mansion, 739, Annasalai, Madras-600 002. Tel: 811566.

NEW ZEALAND

Cap: Wellington; **Area:** 269,057 sq km; **Pop:** 3,264,000; **Lang:** English and Maori dialect; **Rel:** Christian; **Currency:** Dollar US $1=0.56 NZ$.

New Zealand, lying in the South Pacific Ocean with Tasman Sea on the west, consists of two large islands, North island and South island and numerous small islands. It gained dominion status in 1907.

Primary industries are dairying, meat and wool. The major crops are wheat, oats and barley. Minerals include coal and gold. Pulp and paper industry is highly developed. Iron, steel and aluminium are new industries.

Head of State: Queen Elizabeth II, **Gov. Gen:** Sir Paul Reeves, **P.M:** David R. Lange.

Mission in India: High Commission of New Zealand, 25 Golf Links, New Delhi- 110 003. Tel: 697296.

NICARAGUA

Cap: Managua; **Area:** 130,000 sq km; **Pop:** 3,162,000; **Lang:** Spanish and English; **Rel:** Christian; **Currency:** Cordoba. US $1=10 Cordobas.

The republic of Nicaragua is located in the heart of Central America. It became an independent state in 1838. The Somoza dynasty ruled Nicaragua from 1933 to 1979.

The third Somoza was overthrown by armed revolution led by Sandinista National Liberation Front, which emerged as the leading political force in the election held in 1984. But a civil war is being waged aganist the present Ortega Govt. by former members of Nicaraguan National Guard (Somoastan), operating from Honduras with US support.

Agriculture is the principal source of national income. The most important agricultural products are cotton, coffee and sugar-cane. Chief industries are matches, leather, beer and plastic goods. Gold, copper, silver, lead and zinc are found.

President: Daniel Saavedra Ortega.

Mission in India: Embassy of the Republic of Nicaragua, C-5/29, Safdarjung Development Area, New Delhi-110 016. Tel: 657109.

NIGER

Cap: Niamey; **Area:** 1,267,000 sq km; **Pop:** 5,940,000; **Lang:** French and Hausa; **Rel:** Islam and Tribal; **Currency:** Franc CFA, French F1=50 F CFA.

The Republic of Niger lies in the heart of West Africa.

Formerly part of French West Africa, Niger became fully independent in 1970.

It is an agricultural country with very limited resources. The principal crops are peanuts and cotton. Cattle-breeding is the next most important occupation of the people. Uranium has been discovered and mining is going on.

President: Maj. Gen. Seyni Kountche. **P.M:** Hamid Algabid.

Mission in India: Hon. Consul, 119 Broadway, Madras-600 001. Tel: 22200.

NIGERIA

Cap: Lagos (Federal); **Area:** 923,768 sq km; **Pop:** 92,037,000; **Lang:** English, Hausa, Ibo and Yoruba; **Rel:** Islam, Christianity and Tribal; **Currency:** Naira. US $1=0.86 Naira.

The Federation of Nigeria is a West African coastal state within the Gulf of Guinea. River Niger flows through south western Nigeria towards the south where it is joined by its chief tributary Benue River, and empties into the Gulf of Guinea, creating an extensive swampy delta.

Nigeria became an independent state in 1960 and a republic within the Commonwealth in Oct. 1963.

The chief agricultural products are cocoa, plam oil, palm kernels, cotton, rubber, peanuts and skins. Tin, lead, columbite, coal and iron ore represent the chief minerals. There is extensive exploitation of the forest for various timbers. Crude oil exports have become important since 1970. Industry is diversified, beer, cement, cigarettes and aluminium products being the main items.

Head of State and Govt: Maj. Gen: Ibrahim Babangida.

Mission in India: High Commission of Nigeria, 21 Palam Marg, Vasant Vihar, New Delhi- 110 057. Tel: 670405.

NORWAY

Cap: Oslo; **Area:** 323,895 sq km; **Pop:** 4,140,000; **Lang:** Norwegian; **Rel:** Christian; **Currency:** Krone. US $1=7.2 Krone.

Norway extends along the western part of the Scandinavian Peninsula from Skagerrak which separates it from Denmark to North Cape in the Arctic Ocean, where it meets Finland and Soviet Russia.

Norway is known as the *Land of the Midnight Sun,* because in North Cape area, the sun does not set from middle May until the end of July, nor does it rise above the horizon from the end of November to the end of January.

The important agricultural products are barley, oats, rye and potatoes. Fishing is a major occupation with immense quantities of cod, herring, whale, tuna, seal, mackerel and salmon. Forests provide raw material for many industries. Mining is an important industry. There is very little coal but plenty of hydro-electric power to run big factories. The principal manufactures are food products, machinery and metal work, wood, paper and pulp, aluminium and electro-chemical products.

Head of State: King Olav V. **P.M:** Gro Harlem Brundtland.

Mission in India: Embassy of Norway, Shantipath, Chanakyapuri, New Delhi- 110 021. Tel: 605982.

Consulate: Bombay: Nauroji Mansion, 31, Nathelal Parekh Marg.

Calcutta: Calland House, 6th Floor, Chitrakoot, 230 Bose Road, Calcutta.

Madras: 23, VI Main Road, Raja Annamalaipuram, Madras-600 028. Tel: 20561.

OMAN

Cap: Muscat; **Area:** 300,000 sq km; **Pop:** 1,500,000; **Lang:** Arabic; **Rel:** Islam; **Currency:** Rial Omani (= 1000 Baiza). US $1=348 Baiza.

The Sultanate of Oman, formerly Muscat & Oman, occupies the south eastern part of the Arabian Peninsula. Its coastline stretches along the Arabian Sea, the Gulf of Oman and the Persian Gulf. Oman adopted the present name in 1970.

Where there is water, the land is very fertile. The Batina coastal plain is famous for its dates, fruits and grains. Oil, however, is the ace of the economoy.

Head of State & Govt: Sultan Oabus bin Said.

Mission in India: Embassy of Oman, 16, Palam Marg, Vasant Vihar, New Delhi- 110 057. Tel: 670215.

PAKISTAN

Cap: Islamabad; **Area:** 796,095 sq km; **Pop:** 98,971,000; **Lang:** Urdu; **Rel:** Islam; **Currency:** Rupee, US$1=16.03 Rupees.

The Islamic Republic of Pakistan, now confined to West Pakistan, originally came into existence in 1947, following the partition of India into two states, India and Pakistan. Its eastern wing, formerly called East Pakistan, fell apart in 1971. Pakistan is bordered by Afghanistan, Iran, India and China.

Agriculture is the mainstay of Pakistani economy. Wheat, sugarcane, cotton and rice are the major crops. Industries are being developed with indigenous resources and foreign knowhow and assistance. A wide range of minerals like graphite and limestone remain to be exploited.

President: Gen. Mohammed Zia-Ul-Haq: **PM:** Mohammed Khan Junejo.

Mission in India: Embassy of Pakistan, 2/50-G, Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 600601.

PANAMA

Cap: Panama City; **Area:** 77,082 sq km: **Pop:** 2,134,000; **Lang:** Spanish; **Rel:** Christian; **Currency:** Balboa, US$1=1Balboa.

Panama is a narrow strip of territory at the southern end of the Isthmus separating North and South America. At its narrowest point, 50 miles wide, the Atlantic and the Pacific Oceans are united by the famous Panama Canal. It declared itself independent in 1903.

Control over the Panama Canal, linking the Atlantic and the Pacific Oceans, had long been a bone of contention between the US and Panama. In 1978, it was agreed that the US will relinquish all its claims in favour of Panama at the close of the century.

The soil is extremely fertile but nearly one-half of the land is uncultivated. The chief crops are bananas, coffee and cereals. Industry is mainly centred around sugar and alcoholic beverages. Shrimp fishing is important. There are excellent timber resources, notably mahogany.

President: Eric Arturo Delvalle.

Mission in India: Embassy of Panama, D-129, Panch Sheel Enclave, New Delhi-110 017. Tel: 643-8620.

Consulate: Bombay Maker Arcade, Cuffee Parade, 53, Ground Floor, Bombay-400 005. Tel: 21-5585.

PAPUA NEW GUINEA

Cap: Port Moresby; **Area:** 462,840 sq km; **Pop:** 3,601,000; **Lang:** Melanesian and Papuan; **Rel:** Christian and Tribal; **Currency:** Kina. US$1=K 1.04.

Papua New Guinea comprises the eastern section of the island of New Guinea and adjacent islands.

It is a region of lofty mountains and swampy plains. The surrounding islands are largely of volcanic or coral origin.

The population consists of dark-skinned Melanesians, who live mostly along the coasts and woolly-haired Papuans who inhabit the interior.

Agriculture occupies the majority of the population, most of whom are subsistence farmers. Sago, yams, taro, manioc, and sweet potatoes are the main food crops. Cash crops include coconuts, cocoa, coffee and rubber. The country has large deposits of various minerals. Gold and copper are being mined. Oil and natural gas have also been found.

Gov. Gen: Sir Kingford Dibela; **PM:** Palias Wingti.

PARAGUAY

Cap: Asuncion; **Area:** 406,752 sq km; **Pop:** 3,576,000; **Lang:** Spanish, Guarani; **Rel:** Christian; **Currency:** Guarani, US$1=240 Guaranies.

Paraguay is one of the landlocked countries of South America surrounded by Bolivia, Brazil and Argentina. The Paraguay river is navigable for some 1800 miles and steamers come upto Asuncion which is the chief port of the state. This makes up for lack of coastline or sea harbours. It became independent in 1811.

About 75 per cent of the population is engaged in agriculture and allied pursuits with cattle breeding as an important occupation.

The most important agricultural crops are corn, cotton, beans, tobacco and citrus fruits. The timber resources of the state are enormous. The chief exports are beef and other food products, quebracho (hard wood), hides and skins.

President: Alfredo Stroessner.

PERU

Cap: Lima; **Area:** 1,281,215 sq km; **Pop:** 19,197,000; **Lang:** Spanish and Quechua; **Rel:** Christian; **Currency:** Sol, US$1=7521 Sol.

Peru is on the Pacific coast of S. America. The Andes mountains dominate Peru. Some of the rarest species of animals, the vicuna, the llama, the alpaca and the cross-breed paco-vicuna are found in the Andean mountains, where they are now protected.

Peru was originally the seat of the famous Inca (Red Indian) Empire. It became independent on 28 July 1821.

The leading agricultural products are cotton, wool, sugar, coffee, rice and potatoes. Corn which is native to Peru is the staple food of the Indians, who also cultivate alfalfa. Fishing industry is well developed and Peru is the world's most important producer of fish-meal. The country is rich in minerals and some mines dating back to the Incas are even now worked. Peru is one of the leading producers of silver. Some of the biggest copper mines in the world are located in Peru. The chief exports are cotton, fish products, petroleum, sugar and iron ore.

President: Alan Garcia Perez.

Mission in India: Embassy of Peru, D 1/39, Vasant Vihar, New Delhi-110 057. Tel: 674085. Shantiniketen, New Delhi-110 021.

Consulate: Bombay – 6 K Dubash Marg, Bombay-400 023.

PHILIPPINES

Cap: Manila; **Area:** 2,99,404 sq km.; **Pop:** **5,33,95,000; Lang:** Filipino and English; **Rel:** Christian and Islam; **Currency:** Peso. US $1=20.50 Peso.

The Philippines lies 600 miles off the southeast coast of Asia, 15 degrees north of the equator.

An archipelago, the Philippines is composed of 7107 islands, which include the main island groups of Luzon and Mindanao.

The country's industries include rubber products, oil-refining, fruit canning, flour milling, paper, salt, cigars and cigarettes, cement, fertilizers, plywood and lumber, metal and glassware, furniture and textiles, medicinal and pharmaceutical goods, food products and beverages.

Major agricultural crops are rice, maize, sugar, tobacco, abaca, pineapple, coconut, bananas, mangoes and others.

The Philippines is rich in natural resources and has iron, silver, gold, chromite, manganese and copper deposits in commercial quantitiy. It has also marble quarries, forests and extensive fishing grounds in its territorial waters.

Philippines became an independent republic on June 12, 1898.

President: Corazon C. Aquino.

Mission in India: Embassy of Philippines, 50-N, Nyaya Marg, Chanakyapuri, New Delhi-110 021. Tel: 608491.

Consulate: Bombay — Industry House, 159 Churchgate Reclamation.

Calcutta: Mercantile Buildings (2nd Floor), Block E-10, Lal Bazar, Calcutta-700 001. Tel: 22-0514.

Madras: 97, Annasalai, Guindy, Madras-600 032. Tel: 432596.

POLAND

Cap: Warsaw; **Area:** 3,12,677 sq km; **Pop:** 3,72,28,000; **Lang:** Polish; **Rel:** Christian; **Currency:** Zloty. US $1=141 Zlotys.

A People's Republic of upper central Europe, Poland's history goes back to the tenth centrury A.D. Partitioned in 18th century, it became independent in 1918. The Nazi invasion of Poland in 1939 initiated World War II. The country was liberated again in 1944.

Thirty-two percent of the population is engaged in agriculture. Chief crops are rye, wheat, oats, potatoes, sugar beets, tobacco and flax. The country has vast resources of mineral wealth, particularly coal, besides iron, lignite, natural gas, lead and zinc. Textiles, chemicals and metallurgy are old established industries. New industries include automobiles, tractors, heavy machinery, ship-building and aircraft manufacturing. Main exports are ships, coal, steel and clothing.

Chairman of State Council: Wojciech

Jaruzelski. **P.M.:** Zbigniew Messner.

Mission in India: Embassy of Poland, 50 M, Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 608321.

Consulate: Bombay – Manavi Apartments, 36 B.G. Kher Marg.

Calcutta: 3-B, Albert Road, Calcutta-700 017. Tel: 44-7144.

PORTUGAL

Cap: Lisbon; **Area:** 92,072 sq km; **Pop:** 1,00,08,000; **Lang:** Portuguese; **Rel:** Christian; **Currency:** Escudo. US $1=188 Escudos.

Portugal is a small rectangular territory in the southwest corner of the Iberian Peninsula.

Portugal was an independent kingdom from the 12th century. It became a republic in 1910.

Nineteen per cent of the country is forest, where pine, oak, chestnut and cork grow in abundance. Vineyards are found everywhere and wines, olive oil and fruits are produced in large quantities. The major minerals are coal, copper, kaolin, wolframite, lithium and titanium. Textiles. chemicals, paper and glassware are the principal manufactures. The main exports are wine, canned sardines, tuna, anchovies, resins and cork. Portugal is one of the leading countries in the world which produce cork.

President: Dr. Mario Soares. **P.M.:** Anibal Cavaco Silvy.

Mission in India: Embassy of Portugal, A-24 West End Colony, New Delhi-110 021. Tel: 674596.

PUERTO RICO

Cap: San Juan; **Area:** 8891 sq km; **Pop:** 34,04,000; **Lang:** Spanish and English; **Rel:** Christian; **Currency:** Dollar.

The island of Puerto Rico lies 50 miles east of Hispaniola (Haiti and Dominican Republics) in the outer Caribbean. In 1952, it ceased to be a colonial possession and became a Free Commonwealth. It has close association with U.S. People have U.S. citizenship with no voting rights. There is a movement for full independence.

From a purely agricultural country, Puerto Rico is fast changing to an industrial economy. The main crops are sugar, tobacco and coffee. Industries include textiles, clothing, cigars, alcohol, chemicals and household appliances. Tourism is an important source of revenue.

QATAR

Cap: Doha; **Area:** 11,000 sq km; **Pop:** 2,91,000; **Lang:** Arabic; **Rel:** Islam; **Currency:** Riyal. US $1=3.64 Riyals.

Qatar is a 100-mile-long tongue of land jutting into the Persian (Arabian) Gulf. It is surrounded almost on three sides by the Persian Gulf. Saudi Arabia lies to the south.

It became independent in 1971 when Britain withdrew from the Persian Gulf. Qatar is an absolute monarchy.

Most of the population live in and around Doha, the capital. Immigrants from Pakistan, Iran and Oman now outnumber the native Qataris. Today the oil industry provides over 90% of the national income but employs only less than 5% of the population. Qatar is now connected by road to the rest of Arabia and by air to the rest of the world.

Amir: Sheikh Khalifah bin Hamad al Thani. **P.M.:** Heir Apparent Sheikh Khalifah bin Hamad al Thani.

Mission in India: Embassy of Qatar, A-3 West End Colony, New Delhi-110 021. Tel: 673745.

Consulate: Bombay – Bajaj Bhavan, Nariman Point.

ROMANIA

Cap: Bucharest; **Area:** 2,37,500 sq km; **Pop:** 2,28,97,000; **Lang:** Romanian; **Rel:** Christian; **Currency:** Leu plural Lei. US $1=11 Lei.

Romania, lies in the south east of the central part of Europe.

The Black Sea shore has a length of 245 km. Modern Romania was formed in 1859. Industry now dominates Romania's economy.

Heavy industries are predominated by drilling rigs for oil, equipments for oil refineries, petrochemical industry, cement, thermo and hydro electric power, diesel and electric locomotives of high capacity, engineering and consumer goods, etc.

Romanian agriculture recorded profound changes during the last three decades. The changes began with the land reforms of 1945. The small and middle-sized peasant properties were converted into co-operatives, a process which started in 1949 and ended in 1962.

Land, which is the common property of the co-operative farmers, is tilled in common.

The exports are mostly made up of machines and equipment, chemical products, chemicals, fertilizers and industrial consumer goods.

President: Nicolae Ceausescu. **P.M.:** Constantin Dascalescu.

Mission in India: Embassy of Romania 52/A Vasant Marg, Vasant Vihar, New Delhi-110 057. Tel: 670700.

RWANDA

Cap: Kigali; **Area:** 26,338 sq km.; **Pop:** 59,03,000; **Lang:** French and Kinyarwanda; **Rel:** Tribal and Islam; **Currency:** Rwanda Franc. US $1=108.18 RF.

Rwanda is a republic in central eastern Africa, just below the equator. The population of Rwanda includes Watutsi, Bahutu and Batwa tribes.

The Republic of Rwanda, formerly part of the Belgian Trusteeship of Ruanda-Urundi in east central Africa, became independent in 1962.

The economy is agricultural and remains mainly at the subsistence level. Coffee, cotton and pyrethrum are the principal crops. Minerals include tin ore, tungsten, tantalite, and beryl. Industry is undeveloped. Livestock raising is wide-spread and hides and skins are exported.

President: Maj-Gen Juvenal Habyarimana.

SAN MARINO

Cap: San Marino; **Area:** 61 sq km; **Pop:** 50,000; **Lang:** Italian; **Rel:** Christian; **Currency:** Lira.

The republic of San Marino is situated on the slope of Mount Titano in the Apennines on the Adriatic side at the tip of Italy.

It claims to be the oldest state in Europe, having been founded in A.D. 301.

The principal products are wheat, wine and olives. Industries include textiles, ceramics, cement, paper, leather and woollen goods. Tourism is the major source of revenue.

Captains-Regent: Marino Venturini 111 & Aristo Maiani I.

Mission in India: Consulate General of San Marino, 15, Aurangzeb Road, New Delhi-110 011. Tel: 6411991.

SAO TOME & PRINCIPE

Cap: Sao Tome; **Area:** 964 sq km; **Pop:** 102,000; **Lang:** Portuguese, native dialects, **Rel:** Christian; **Currency:** Dobra. US$1=46.66 Dobra.

These two islands, with a few other nearby islets, lie in the Gulf of Guinea, about 125 miles from Gabon. Situated north of the equator, these islands have hot steaming weather in the summer, but plenty of rainfall. The largest of the islands is Sao Tome, on which stands *Sao Tome,* the capital and chief port.

These islands were under the Portuguese until 1975 when they became independent.

Today, the country's economy is geared almost exclusively to the production of agricultural export commodities, especially cocoa. Sao Tome has to import most of its food. There is virtually no manufacturing industry except soap, soft drinks, etc.

President and PM: Manuel Pinto da Costa.

SAUDI ARABIA

Cap: Riyadh (Royal) and Jeddah (Administrative); **Area:** 2,149,690 sq km; **Pop:** 10,824,000; **Lang:** Arabic; **Rel:** Islam; **Currency:** Rial. US$1=3.60 Rials.

Saudi Arabia occupies nearly four-fifths of the Arabian peninsula.

In the province of Hejaz are Medina, where Mohammed the Prophet was buried on June 7, 632 and Mecca the birthplace of the Prophet. There is a great mosque in Mecca which shelters the sacred shrine, the Kaaba. On one side of the Kaaba is the black stone believed to, have been given to Abraham by Archangel Gabriel. This shrine is the place of pilgrimage for Muslims the world over.

Saudi Arabia is an absolute monarchy, with no parliament.

Saudi Arabia has great oil wealth and is the foremost exporter of petroleum products today. The income from oil forms the major source of public revenue. All the same, Saudi Arabia remains an agricultural country whose main products are dates, wheat, barley, fruit, hides and wool.

Head of State & Govt: King Fahd Ibn Abdel Aziz al Said.

Mission in India: Embassy of Saudi Arabia, S-347, Panchshila Park, New Delhi-110 017. Tel: 665419.

Consulate: Jolly Chamber No 11, 12th Floor, Nariman Point, Bombay.

SENEGAL

Cap: Dakar; **Area:** 196,162 sq km; **Pop:** 6,352,000; **Lang:** French and native tongues; **Rel:** Islam and Tribal; **Currency:** Franc CFA. French F1=50 FCFA.

Senegal lies on the West African bulge. In the southern part of the country, Gambia forms a narrow enclave extending some 200 miles into the interior.

Formerly a French colony, Senegal became a self-governing republic in 1960.

Agriculture and livestock rearing are the chief occupations. There are large deposits of iron ore and phosphate. Developing industries include food processing, chemicals and textiles.

President: Abdou Diouf.

SEYCHELLES

Cap: Victoria; **Area:** 308 sq km; **Pop:** 64,718; **Lang:** Creole and French; **Rel:** Christian; **Currency:** Rupee. US $1=7.62 Rupees.

Seychelles forms a group of lovely islands, in western Indian Ocean. The principal island is Mahe on which the capital Victoria is situated. The group consists of some 92 islands, of which 45 are coralline and the rest granitic. Seychelles became an independent republic in 1976.

Seychelles was entirely uninhabited when the French established settlements there in 1770.

The population of Seychelles is of mixed origin, a unique blend of European, African, Indian and Chinese races. The Seychelles have evolved a mixed language, which may be called Creole. Coconuts take the pride of place among agricultural products. Cinnamon is the next major crop and export. Other crops like tea and lime are also grown. Fishing is another major occupation. Tuna, mullet, mackerel, sardines and shell fish abound in the offshore waters.

President: France Albert Rene.

SIERRA LEONE

Cap: Freetown; **Area:** 71.740 sq km; **Pop:** 3,536,000; **Lang:** English and Tribal; **Rel:** Islam, Christianity and Tribal; **Currency:** Leone. US $1=6 Leones.

Sierra Leone (meaning mountain of the lion) was the name originally given to this area by Portuguese sailors mainly on account of the thunder-storms around its coastal peaks. It lies on the West African bulge, between Guinea and Liberia.

Formerly under British rule, Sierra Leone became independent in 1961.

The economy is based on agriculture and mining. Principal products are industrial diamonds, iron ore, bauxite, kola nuts, palm kernel, cocoa and coffee.

President: Maj. Gen. Joseph Saidu Momoh.

SINGAPORE

Cap: Singapore city; **Area:** 616.3 sq km; **Pop:** 2,540,000; **Lang:** Malay, Chinese, Tamil and English; **Rel:** Buddhism, Hinduism, Islam, Christianity and Taoism; **Currency:** Dollar. US $1=2.28 Sing. Dollars.

Singapore is a small island with some 54 outlying islets situated at the southern tip of the Malay Peninsula, to which it is linked by a causeway. The island is about 41.84 km in length and 22.53 km in breadth.

The population of Singapore is composite. The Chinese comprise 76.5% and Malays 14.8% and Indians 6.4%.

In August 1965 Singapore became an independent Republic.

The country is an entrepot for Malaysia and other southeast Asian states. The chief exports are rubber and tin. Industries include tin smelting, rubber goods, lumber working and ship-building, textiles and electronics.

President: Wee Kim Wee, **P.M:** Lee Kuan Yew.

Mission in India: High Commission of Singapore, E6, Chandragupta Marg, Chanakyapuri, New Delhi-110 021. Tel: 604162.

SOLOMON ISLANDS

Cap: Honiara; **Area:** 29,758 sq km; **Pop:** 258,193; **Lang:** English and Pidgin English; **Rel:** Christian; **Currency:** Solomon Island Dollar (SI$). US $1=1.44 SI$.

The Solomon Islands are in the South West Pacific and lie to the east of Papua Guinea.

Originally a British Protectorate, it achieved independence in 1978.

The population is predominantly Melanesian. Copra is the main cash crop and rice the chief food crop. Fish is a vital element in food and an export item.

Gov. Gen: Sir Baddeley Devisi. **P.M:** Sir Peter Kenilorea.

SOMALIA

Cap: Mogadishu; **Area:** 637,657 sq km; **Pop:** 7.5 million; **Lang:** Somalia and Arabic; **Rel:** Islam; **Currency:** Somali Shilling. US $1=36.60 Som. Shilling.

A republic on the east coast of Africa, Somali Democratic Republic was formed by the union of the former Italian Somaliland and the British Somaliland on July 1, 1960.

Somalia is an agricultural country. But out of 8.2 m hectares of fertile land only 7 m hectares are cultivated. Has 40.1 m livestock.

President: Maj. Gen. Mohammed Ziyad Barre.

Mission in India: Embassy of Somalia Democratic Republic, 12-A, Golf Links, New Delhi- 110 003. Tel: 619559.

SOUTH AFRICA

Cap: Pretoria; **Area:** 1,221,037 sq km; **Pop:** 31,586,000; **Lang:** Afrikaans and English; **Rel:** Christian; **Currency:** Rand. US $1=2.06 Rands.

The Republic of South Africa lies at the southern tip of the continent of Africa. S. Africa includes the original white colonies of the Cape of Good Hope, Natal, Transvaal and Orange Free State. Formerly known as the Union of South Africa, it became a republic after leaving the Commonwealth in March 1960.

The major agricultural products are cotton, wheat, tobacco, sugarcane and citrus fruits. With vast mineral resources, South Africa is the biggest gold and diamond producing country in the world and one of the biggest in uranium. About 47 per cent of the world's total production of gold is from South Africa. Other minerals include coal, copper, tin, manganese, iron, lead and chrome. Manufacturing industries include heavy engineering, chemicals, textiles and food processing.

The country follows a policy of *Apartheid,* the separate development of racial groups. Under the Bantu Home Lands Constitution Act of 1971, self-government has been given to Transkei, Bophuthatswana, Venda and Ciskei.

No country in the world has recognised these states as independent entities. Nevertheless the show goes on.

President: Marais Viljoen. **P.M:** Pieter Wilhelm Botha.

SPAIN

Cap: Madrid; **Area:** 5,04,750 sq km; **Pop:** 38,717,000; **Lang:** Spanish; **Rel:** Christian; **Currency:** Peseta. US$1=190 Pesetas.

With the discovery of America for Spain by Columbus in 1492, Spain became a great colonial empire. After the defeat of the Spanish Armada by England in 1588, Spain shrunk into a minor continental power. In 1939, it passed under the dictatorship of Gen. Franco. On Franco's death in 1975 Spain became a constitutional monarchy.

Traditionally an agricultural country, Spain's main products are cereals, vegetables and fruits. Industries include chemicals, machine tools and ship-building.

Head of State: King Juan Carlos; **P.M.:** Felipe Gonzales Marquez.

Mission in India: Embassy of Spain, 12 Prithviraj Road, New Delhi-110 011. Tel: 3015892.

Consulates: Bombay – 6, K-Dubash Marg.

Calcutta: No.1, Taratolla Road, Garden Reach, Calcutta-700 024. Tel: 45-5771.

Madras: 'Lovedale' 8, Nimmo Road, San Thome. Tele: 72008.

SRI LANKA

Cap: Colombo (Sri Jayewardenepura); **Area:** 65,610 sq km; **Pop:** 16,076,000; **Lang:** Sinhalese and Tamil; **Rel:** Buddhism, Hinduism, Islam and Christianity; **Currency:** Rupee. US$1=27.45 Rupees.

Sri Lanka is an island separated from India by the shallow Palk Strait. It is bounded on the west by the Palk Strait and the Gulf of Mannar, on the north and east by the Bay of Bengal and on the south by the Indian Ocean.

Sri Lanka became independent in 1948 as a member of the Commonwealth. 1985 saw bloody confrontation between northern Tamilians seeking a separate province and government.

Sri Lanka's major products are agricultural– tea, rubber and coconuts. The commercially important mineral is graphite. There are deposits of iron ore, monazite, ilmenite, limestone, clay and kaolin. Industries include cement, textiles and fertilizers. Sri Lanka has embarked on a programme of economic reconstruction in which the harnessing of the Mahawali river for irrigation and hydel power, a house construction programme, an investment promotion zone, etc. are important features.

President: J. R. Jayawardene. **P.M.:** Ranasinghe Premadasa.

Mission in India: High Commission of Sri Lanka, 27 Kautilya Marg, Chanakyapuri, New Delhi-110 021. Tel: 370201.

Consulate: Bombay – Sri Lanka Home, 34 Homi Modi Street.

Dy. High Commissioner, Madras: 9-D Nawab Habibullah Ave, Anderson Road.

ST. KITTS-NEVIS

Cap: Basseterre; **Area:** 269 sq km; **Pop:** 44,109; **Lang:** English and Patois; **Rel:** Christian; **Currency:** Dollar.

St. Christopher (Kitts)-Nevis is two islands in East Caribbean separated by a narrow channel 2 miles wide. The islands were given the status of an Associate State with Britain in 1967 and became independent on Sept. 18, 1983. At that time Anguilla was part of St. Kitts-Nevis. The Anguillans revolted against this arrangement and Anguilla was separated. (see *Dependencies* infra).

The population is mostly black. The economy is agricultural, sea island cotton and sugar cane being the principal crops.

Gov. Gen: Sir Clement Athelston Arrindell. **P.M.:** Dr. Kennedy Alphonse Simmonds.

ST. LUCIA

Cap: Castries; **Area:** 616 sq km; **Pop:** 1,26,800; **Lang:** English and French patois; **Rel:** Christian; **Currency:** Dollar.

St. Lucia, the second largest island in the Windward group, lies to the south of Martinique and to the north of St. Vincent. It became independent on Feb. 22, 1979.

The economy is agricultural, copra, coconut oil, bananas and cocoa being the main export items. Manufactures include plastics, garments and beer.

Gov. Gen.: Sir Allen Lewis. **P.M.:** John George Melvin Compton.

ST. VINCENT

Cap: Kingstown; **Area:** 389 sq km; **Pop:** 1,23,000; **Lang:** English and French Patois; **Rel:** Christian; **Currency:** Dollar.

One of the Windward Islands, west of Barbados, St. Vincent became a British Associate State in 1969 and achieved independence on Oct. 27, 1979.

The population is of mixed origin– European-Negro and Carib-Indian. Bananas, arrowroot, copra, sea island cotton and spices are the main exports. Tourism is important.

Gov. Gen.: Sir Sydney Gun-Murro. **P.M.:** James Fitz Allen Mitchell.

SUDAN

Cap: Khartoum; **Area:** 25,05,813 sq km; **Pop:** 20,945,000; **Lang:** Arabic and English; **Rel:** Islam, Christianity and Tribal; **Currency:** Pound. US $1=£S2.50.

Sudan is a republic of north east Africa. The White Nile flows through the middle of the country and joins the Blue Nile at Khartoum. The Sudanese population consists of Arabs, Negroes and Nubians of mixed Arab and Negro blood. Sudan became an independent state in 1885.

The main agricultural crop sorghum is the country's staple food. Other products include longstaple cotton, sesame, peanuts, dates, hides and skins, chillies, beans and corn. Sudan is the world's principal source of gum Arabic. Rice, peanuts, coffee, sugar cane and tobacco are expanding items of agricultural production. Sudan's mineral wealth includes copper, gold, iron, manganese and magnesite. Oil has also been found.

Head of Sovereignty Council: Ahmed el Mirghani; **P.M.:** Sadiq el-Mehdi.

Mission in India: Embassy of Sudan, M14, South Extension 11, New Delhi-110 049. Tel: 660434.

SURINAM

Cap: Paramaribo; **Area:** 1,63,265 sq km; **Pop:**

352,000; **Lang:** Dutch and English; **Rel:** Islam and Christianity; **Currency:** Guilder US $1=1.78 Guilders.

Surinam, formerly Dutch Guiana, lies on the north east coast of South America. It became independent in 1975.

The population comprises a medley of ethnic strains–Negroes, Chinese, East Indians and Indonesians. Mulattoes (of mixed European and East Indian parentage), Amer-Indians and Europeans form 40 per cent of the population.

Much of the land is given to rice cultivation. The country is rich in minerals. It is the second biggest producer of bauxite in the world. Bauxite, alumina and aluminium constitute nearly 90 per cent of the exports.

Chairman, National Military Council: Lt. Col. Deysi Bouterse. **P.M.:** Henk Chin A Sen.

SWAZILAND

Cap: Mbabane; **Area:** 17,363 sq km; **Pop:** 630,000 **Lang:** English and si-Swati; **Rel:** Christian and Tribal. **Currency:** Emalangeui. US $1 = 2.06 Emalangeui.

Swaziland is surrounded almost entirely by South Africa. Mozambique to the east is its only other neighbour.

Swaziland, formerly a British protectorate, attained independence on Sept. 6, 1968.

Sugar is the principal item in the economy, with citrus fruits, cotton, rice and maize, coming next. But the main wealth of the Swazis is cattle. There are considerable mineral reserves, especially, asbestos, iron and coal.

Head of State: King Mswati III Sofia Dlamini. **P.M.:** Sotia Dlamini.

SWEDEN

Cap: Stockholm; **Area:** 449,793 sq km; **Pop:** 82,84,000; **Lang:** Swedish; **Rel:** Christian; **Currency:** Krona. US$1=9.69 Krona.

Sweden is the largest of the Nordic countries and in terms of area, the fourth largest country in Europe. To the west, the Scandinavian mountain range divides Sweden from Norway. To the northeast, a shorter range separates Sweden from Finland. Otherwise, Sweden is surrounded by water– Baltic Sea and the North Sea. Sweden has been a constitutional monarchy since 1434.

Sweden has rich natural supplies of coniferous forest, water power, iron ore, uranium and other minerals but lacks significant oil and coal deposits.

The country is highly industrialised. Today about 40 per cent of the country's industrial production is exported. Swedish steel is especially reputed for tool making. Sweden is one of the greatest producers of wood pulp, paper and lumber.

Head of State: King Carl XVI Gustav. **P.M.:** Ingvar Carlsson.

Mission in India: Embassy of Sweden, Nyaya Marg, Chanakyapuri, New Delhi-110 021. Tel: 604961.

Consulates: Bombay – Indian Mercantile Chambers, Nicol Road, Ballard Estate.

Calcutta: C/o. M/s. Flakt India Ltd., Mahohtala, Jal Khuna, W. Bengal.

Madras: Hon. Consul, 6, Cathedral Road, Madras-600 086.

SWITZERLAND

Cap: Berne; **Area:** 41,293 sq km; **Pop:** 65,05,000; **Lang:** German, French, Italian and Romansch; **Rel:** Christian; **Currency:** Franc. US $1=1.85 Swiss Francs.

Switzerland, a Confederation in Central Europe is a mountainous country, with the Alpine ranges rising from its bosom. The country is famous for its lakes.

Since 1291 Switzerland has remained a completely independent country. It is a multilingual state with most people talking more than one language.

The Swiss terrain offers little scope for farming. Nevertheless, a number of small efficient farms operate and keep the farming community going. The emphasis is on livestock raising and dairying. Forests help by providing plenty of wood. From the earliest times Switzerland has been famous for its cottage industries–high quality products but no large-scale production.

Swiss-made watches and clocks are famous the world over. Precision tools and machines form another specialised industry. The availability of electric power in every cottage has fostered growth of all kinds of small industries throughout Switzerland. Tourism is the third most paying industry. India has always been one of the major recipients of Swiss assistance, specially in the areas of cattle breeding, rural development, vocational training and in various fields of applied research.

President of the Confederation for 1988: Otto Stich.

Mission in India: Embassy of Switzerland, Nyaya Marg, Chanakyapuri, New Delhi-110 021. Tel: 604225.

Consulate: Bombay – Menek Mahal, 7th Floor, 90 Vir Nariman Road. Tel: 2043550.

SYRIA

Cap: Damasucs; **Area:** 1,85,180; sq km; **Pop:** 1,01,89,000; **Lang:** Arabic; **Rel:** Islam; **Currency:** Pound. US $1=£Syr 8.50.

The Syrian Arab Republic in the middle east lies in between Turkey, Iraq, Jordan, Palestine and Lebanon. The Mediterranean Sea is on the west. The Orontes and Euphrates rivers pass through Syria. The chief seaport is Latakia and Tartous.

Syria, the seat of an ancient civilization became a fully independent sovereign republic in 1946.

Agriculture and cattle-breeding comprise the major occupations of the people. The chief crops are cotton, wheat, tobacco and olives. The only mineral found is oil. Industries include oils, soap, textiles, leather and tobacco.

President: Lt. Gen. Hafez al-Assad. **P.M.:** Abdel Raouf al-Kassem.

Mission in India: Embassy of Syrian Arab Republic, 28 Vasant Marg, Vasant Vihar, New Delhi-110 057. Tel: 670233.

Consulate: Bombay – 3rd Floor, Cambatta Building, Sir Jamshedji Tata Road.

TAIWAN

Cap: Taipei; **Area:** 35,981 sq km; **Pop:** 1,88,00,000; **Lang:** Mandarin Chinese; **Rel:** Buddhism and Confucianism; **Currency:** New Taiwan Dollar. US $1=NT $39.28.

Taiwan, formerly known as Formosa, includes not only Taiwan proper, but also a number of small islands.

Originally Taiwan and adjoining areas were Chinese territory. In 1950 Chiang Kai Shek made Taiwan the headquarters of the Nationalist Republic of China. Although Taiwan still claims to be the legal government of all China it lost its membership in the UN and its permanent seat in the Security Council to Communist China in 1971.

The main agricultural products are rice, tea, sugar, sweet potatoes, ramie, jute and turmeric. Camphor secured from forests is a government monopoly. Industries comprise cotton fabrics and electrical goods, iron works, glass and soap. Coal, marble, petroleum and natural gas are the principal minerals.

President: Chiang Ching-Kuo; **P.M.:** Yu Kuo-hua.

TANZANIA

Cap: Dar-es-Salaam; **Area:** 9,45,087 sq km; **Pop:** 2,17,10,000; **Lang:** Kiswahili and English; **Rel:** Christianity and Islam; **Currency:** Shilling. US$1=Sh.18.50.

Tanzania in East Africa consists of Tanganyika and the islands of Zanzibar and Pemba. The islands of Zanzibar and Pemba are about 40 km off the coast, north of Dar-es-Salaam.

In April 1964, the People's Republic of Zanzibar and Pemba and the Republic of Tanganyika merged to form the United Republic of Tanzania.

The economy is agricultural. The chief cash crops are sisal, sugarcane, cotton and coffee. Cloves are grown on the islands, chiefly in Pemba. Livestock is extensively raised. Diamonds are an important export. Other minerals include gold, tin and salt.

Head of State: Ali Hassan Mwinyi. **P.M.:** Salim Ahmed.

Mission in India: High Commission of Tanzania, 27 Golf Links, New Delhi-110 003. Tel: 694351.

THAILAND

Cap: Bangkok; **Area:** 542,373 sq km; **Pop:** 50,584,000; **Lang:** Thai; **Rel:** Buddhism and Islam; **Currency:** Baht. US$1=28.25 Bahts.

Thailand, formerly known as Siam, is a constitutional monarchy in southeast Asia.

An ancient autocracy, it became a constitutional monarchy in 1932. In 1948 the country assumed its present name Thailand.

Agriculture is the mainstay of the country and engages 60 per cent of the population. The chief crop is rice, much of which is exported. Coconuts, tobacco, cotton and teak are the other items of agricultural exports. During the last decade Thailand increased her export of manufactured and processed items. Minerals include tin, manganese, tungsten, antimony, lignite and lead.

Head of State: King Bhumibol Adulyadej Abuldet. **PM:** Prem Tinsulanonda.

Mission in India: Embassy of Thailand, 56-N, Nyaya Marg, Chanakyapuri, New Delhi-110 021. Tel: 605679.

*Consulates:*Bombay – 'Paresh' 6th Floor, 4A Bhulabhai Desai Road.

Calcutta: 18 B Mandoville Gardens, Calcutta-700 019. Tel: 46-0836.

TOGO

Cap: Lome; **Area:** 56,600 sq km; **Pop:** 2,838,000; **Lang:** French (official) and Tribal; **Rel:** Tribal and Christian; **Currency:** Franc CFA. US$1=523.75 FCFA.

The Republic of Togo, formerly Togoland, lies on the west coast of Africa forming a narrow strip stretching from the Gulf of Guinea north to Burkina Faso. Togo became independent in 1960.

The principal products are coffee, cocoa, cotton, palm kernels, kapok and groundnuts. Togo's considerable natural resources are still largely undeveloped but phosphates are being mined in increasing quantities, and now form the country's principal export.

President: Gen. Gnassingbe Eyadema.

TONGA

Cap: Nuku'alofa; **Area:** 748 sq. km; **Pop:** 98750; **Lang:** English and Tongan; **Rel:** Christian; **Currency:** Paanga. US$1=1.47 Paanga.

Tonga consists of 169 islands and islets in the south western Pacific Ocean. The Tropic of Capricorn and the International Date Line cross each other very near Tonga.

Tonga became a British-protected state in 1900 and independent state on June 4, 1970.

Tonga is an agricultural country. Vegetables and fruits are grown for local consumption. The most important export crop is copra; next comes bananas.

Head of State: King Taufaahu Topou IV. **PM:** Prince Fatafehi Tuipelehake.

Mission in India: Consulate of Tonga, C/o. G.P. (P) Ltd., 17, Chittaranjan Ave, Calcutta-700 072. Tel: 27-3568.

TRINIDAD AND TOBAGO

Cap: Port-of-Spain; **Area:** 5128 sq km; **Pop:** 1,105,000; **Lang:** English; **Rel:** Christian; **Currency:** Tri & Tob Dollar. US$1=TT$2.40.

Trinidad, the second largest and most southerly of the West Indian Islands (south of Windward Isles) lies very near the north coast of South America. Attached to it for administrative purposes is the island of Tobago. Tobago is often called Robinson Crusoe Island in the belief that this was the island on which Crusoe was stranded. It is just 20 miles from Trinidad. Tobago is famous for its rich avian fauna.

Formerly a British Colony, Trinidad & Tobago achieved independence in 1962 and assumed republican status in 1976.

Industries include oil processing, manufactured goods and tourism. Chief crops are sugarcane, citrus fruit and cocoa.

President: Ellis Emmanuel Innocent Clarke, **P.M.** George Chambers.

Mission in India: High Commission of Trinidad and Tobago, 131 Jor Bagh, New Delhi-110 003. Tel: 618186.

TUNISIA

Cap: Tunis; **Area:** 164,150 sq km; **Pop:** 6,966,173; **Lang:** Arabic (official) and French; **Rel:** Islam; **Currency:** Dinar, US$1=0.750 Dinar.

A republic in North Africa, lying on the Mediterranean coast and formerly a French protectorate, Tunisia became autonomous in 1955, and assumed republican status in 1957.

Tunisia is an agricultural country, and produces wheat, barley, oats, dates, olives, apricots, almonds, figs, peaches, vegetables and alfa grass. The chief minerals are phosphates iron, lead and zinc. The principal exports are olive oil, wine, phosphates and grains.

President: Gen. Zine el Abidine Ben Ali

Mission in India: Embassy of Tunisia, 23 Palam Marg, Vasant Vihar, New Delhi-110 057 Tel: 676204.

TURKEY

Cap: Ankara; **Area:** 779,452 sq km; **Pop:** 50.

n.; **Lang:** Turkish; **Rel:** Secular, main religion slam; **Currency:** Lira. US$1=600 TL.

A republic in south eastern Europe and Asia Ainor, Turkey occupies a strategic position, nking as it does Asia and Europe at the Straits of Bosporus, between the Mediterranean and he Black Sea. The major portion of Turkey lies n Asia Minor.

Asiatic Turkey, that is, Anatolia, was the seat of one of the earliest civilizations known. stanbul, the present capital, was first known as Byzantium and then as Constantinople. The Ottoman Turks conquered Constantinople in 453 and founded a Turkish Empire. In 1923 'urkey became a republic.

Agriculture maintains about 64 per cent of he population. The chief products are tobac-o, wheat, cotton, olive oil and sugar. Turkey is he world's second largest producer of sultana aisins. Sheep and cattle abound in the plateau of Anatolia and provide mohair for which 'urkey is famous. The main minerals are iron re, copper, chromium, bauxite and coal.

President: Gen. Kenan Evren, **PM:** Turgut Ozal.

Mission is India: Embassy of Turkey, Plot 14, No. 50, Nyaya Marg, Chanakyapuri, New Delhi-10 021. Tel: 601921.

Consulate: Bomaby—Mittal Court, C Wing, 0th Floor, Room No. 105, Nariman Point.

Consulate General: 2 Nazar Ali Law, Calcut-a-700 029. Tel: 44-5605.

Madras: 18/19, Bawa Rowther Road, Alwar-et, Madras-600 018. Tel: 72219.

TUVALU

ap: Funafuti; **Area:** 26 sq km; **Pop:** 7349; **ang:** Tuvaluan, English; **Rel:** Christian; **Cur-ency:** Dollar.

Formerly known as the Ellice Islands, Tuva-u is a scattered group of nine small atolls in he Western Pacific Ocean, north of Fiji and ast of Solomon Islands. It became indepen-ent in 1975 under the name Tuvalu.

The poor quality of the soil permits subsist-nce farming of coconuts only. Copra and ostage stamps are the main foreign exchange arners.

Gov. Gen: Sir Fiatau Penitala Teo, **PM:** Dr. 'omasi Puapua.

UGANDA

ap: Kampala; **Area:** 241,139 sq km; **Pop:**

Uganda: 25 Years of Freedom

Kampala, Uganda: Uganda celebrated 25 years of independence on 9th October 1987 under the shadow of violence in the north and east and with many Ugandans unconvinced that the quarter century has brought any benefits to the former British protectorate.

As President Yoweri Museveni watched the traditional independence parade on Kololo Hill, where the Duke of York handed over power on behalf of Britain to Milton Obote in 1962, government troops were preparing to attack a band of at least 4,000 rebels near the eastern town of Tororo.

The fighting in the east is the latest in almost 20 years of internal conflicts that have left hundreds of thousands of Ugandans dead and shattered the high hopes of prosperity for the country that Winston Churchill called the "Pearl of Africa."

"There's nothing to show for these 25 years," Prime Minister Samson Kisekka said "We have been going backwards."

The Citizen, *newspaper of the influential Democratic Party, spoke of 25 years of repression, dictatorship and poverty.*

Ugandan's troubles began in 1966 with a power struggle between Mr. Obote and the traditional kingdoms of Buganda, Toro, Bunyoro and Ankole. In 1971, the army commander, Idi Amin, seized power and began an eight-year rule marked by mass murder, brutality and indiscriminate plunder of the economy.

He has promised to end tribalism, enforce respect for human rights and introduce a form of local democracy. But northern groups and disgruntled remnants of former armies have challenged his legitimacy, dragging Uganda back into the cycle of violence.

15 150 000; **Lang:** English and Luganda; **Rel:** Tribal and Islam; **Currency:** Uganda Shilling. US$1=565 U. Shillings.

Uganda is an equatorial state in East Africa. Formerly a British protectorate, Uganda became independent in 1962 and a republic in 1963. A military coup led by Lt. Gen. Tito Okello ousted Milton Obote's Govt. in 1985. Milton Obote had himself come to power after ousting dictator Idi Amin in 1979.

The economy is agricultural. Main products are cotton and coffee. Tea, sugar, vegetable oils, oil seeds, hides, skins and tobacco are exported. Copper is the chief mineral.

President: Yoweri Museveni; **P.M.:** Samson Kisekka.

Mission in India: High Commission of Uganda, 61 Golf Links, New Delhi-110 003. Tel: 693584.

UNITED ARAB EMIRATES

Cap: Abu Dhabi; **Area:** 82,880 sq km; **Pop:** 1 255 000; **Lang:** Arabic; **Rel:** Islam; **Currency:** Dirham, US$1=3.68 Dirham.

The United Arab Emirates consist of seven Sheikdoms in the Persian Gulf—Abu Dhabi, Dubai, Sharjah, Umm al Quwain, Ajman, Fujairah and Ras al Khaimah. The first six Sheikdoms signed the Union agreement on 2nd Dec. 1971. Ras al Khaimah joined the Union only in February 1972.

Abu Dhabi, which is the capital of the Union, is the largest of the Emirates in area. Dubai is the main port of the Union and now has the largest harbour in the Middle East. The economy of UAE is almost entirely dependent on oil.

President: Sheik Zaid bin Sultan al Nahayan (of Abu Dhabi). **PM:** Sheik Rashid bin Said al-Maktoum (of Dubai).

Mission in India: Embassy of UAE, A-7, West-End Colony, Rao Tula Ram Marg, New Delhi-110 021. Tel: 670830.

Consulate: Bombay—Bungalow No. 7, Jolly Maker Apartment, Cuffe Parade, Colaba.

UNITED KINGDOM

Cap: London; **Area:** 244,108 sq km; **Pop:** 55 624 000; **Lang:** English; **Rel:** Christian; **Currency:** Pound Sterling. £1=US$1.07.

A constitutional monarchy, the United Kingdom comprises the island of Great Britain and Northern Ireland, together with many small islands. It is separated from the coast c Western Europe by the English Channel to th south and by the North Sea to the east. Th northern and western shores are washed b the Atlantic Ocean.

Great Britain is the largest of the islan forming the United Kingdom. It compris England, Scotland, Wales, the Isle of Man an the Channel Islands. St. George's Channel an Irish Sea lie between the UK and Irelan Britain is much less than half the size of Franc or Germany and would fit forty times into th United States of America. Yet, for hundreds years this island has been a world powe From its shores men set out to lay th foundation of what is now the United States America and to develop Canada, Austral New Zealand, the Indian continent and gre

Iron Lady Sets Record

History was made on the morning of June 12, 1987 when, in a spectacular election triumph, Mrs. Margaret Thatcher, 62, became the first British Prime Minister for more than 150 years to win a third consecutive term of office. She has also exceeded Lord Asquith's record in this century of occupying 10, Downing Street for nearly nine years without a break.

The Thatcher victory further widens the chasm in British society. The Labour Party admitted that they faced five more years of Thatcherism. *The Alliance Party was shattered. For the Social Democrats, the picture became bleak-minus Dr. David Owen, the other three founding members were not able to retain their Parliamentary seats.*

The Thatcher victory set the scene for an aggressive Tory third term in which more privatisation of services and national industries, reform of local government taxes and more emphasis on individual prosperity, would dominate the legislative programme. Mrs. Thatcher will also be tempted to bask in her new-found glory as an international super-star. She will be seen more frequently on the world stage, claiming credit for Britain.

areas of Africa. British institutions and methods of government have set the pattern for lovers of freedom everywhere. And today, Britain's Queen is Head of a family of several million people, spread all over the world.

Great Britian is a constitutional monarchy. The sovereign is the Head of State and monarchy is hereditary. Actual power is vested in Parliament which is the supreme legislative body in Great Britain. The Parliament consists of two houses— the House of Lords and the House of Commons.

Britain is one of the world's leading industrial and exporting countries. Chief industries are iron and steel, engineering, chemicals, electronics, motor vehicles, aircraft, textiles, cloth and other consumer goods. Its coal mines yield about 128 million tons annually. Although Britain's agriculture and trawler-fishing are highly mechanised, half of the country's food supplies and most of its raw materials are imported. North sea oil is a lately added boon to British economy.

Northern Ireland is situated in the northeast of Ireland and forms part of the United Kingdom. It comprises six Ulster counties of Antrim, Armagh, Down, Fermanagh, Londonderry and Tyrone. The rest of the island forms the Republic of Ireland. Northern Ireland has been rocked by bloody agitation for union with Catholic Irish Republic. 1985 saw an Anglo-Irish agreement which for the first time gave Dublin a say in the running of the province.

Agriculture is the main occupation in Northern Ireland. Cattle, sheep, hogs, eggs, poultry, potatoes and milk are the important products. Linen, ropes, twines, rayon, clothing, tobacco, aircraft and shipping form the main branches of industry.

Head of State: Queen Elizabeth II, **PM:** Mrs. Margaret Thatcher.

Mission in India: British High Commission, Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 601371.

Consulates: Bombay–Hong Kong Bank Building, M.G. Road.

Calcutta: 1, Ho Chi Minh Sarani, Calcutta-16. Tel: 44-5171.

Madras: Hon. Consul, 24, Anderson Road, Madras-600 006. Tel: 473136.

USA

Cap: Washington D.C; **Area:** 93,72,614 sq km.; **Pop:** 22,65,47,346; **Lang:** English; **Rel:** Christian; **Currency:** Dollar.

The United States of America is a federal republic composed of 50 states, of which all except one–Hawaii islands–are in mainland America.

The United States of America, which covers the central part of North America, grew out of the British colonies that were established in North America in the first half of the 17th century.

USA's participation in the First World War and the victory of the Allies made it a world power. The end of the Second World War saw the emergence of USA as one of the superpowers of the world.

The Union originally comprised 13 states, to which 7 were added subsequently. Thirty other states, which were formerly territories were also admitted into the Union as full states, thus making up 50 states in all, apart from the District of Columbia. Each state has its own constitution. The State constitutions

Fifth Centenary of Historic Voyage

Elaborate plans are under way in Spain and the United States to commemorate the 500th anniversary of Columbus' historic voyage in 1492 which ended with the "discovery" of the New World. This has caused some heart-searching in Portugal, which has a plaint that the world knows little and cares less for the even greater navigational "firsts" which sailors from Portugal achieved in the history of the West.

Apart from "keeping up with the Joneses", traditionally Portugal has always viewed even friendly Spanish gestures for better ties with a degree of suspicion.

Historians say this is because Spain ruled over Portugal for 60 years from 1580 to 1640 and there is always a lurking fear that the conquistador *element still survives in Madrid. At long last, the government in Lisbon has hit upon an idea to outshine the Columbus commemoration: it is building a "theme park" costing US dollar 70 million to perpetuate Portugal's sea-faring prowess.*

provide for a legislature of two Houses, (except Nebraska which has only one House). a Governor and a judicial system of its own. The state governments can deal with all matters which are not reserved to the federal legislature. The following table gives the existing states of the Union with their postal abbreviations, capitals, area and population.

States of the Union

Name	Capital	Area (sq km)	Population (1980)
Alabama (AL)*	Montgomery	133916	3893888
Alaska (AK)	Juneau	1530700	401851
Arizona (AZ)	Phoenix	295260	2718425
Arkansas (AR)	Little Rock	137754	2286435
California (CA)	Sacramento	411049	23667565
Colorado (CO)	Denver	269596	2889735
Connecticut (CT)	Hartford	12997	3107576
Delaware (DE)	Dover	5294	594317
District of Columbia (DC)	Washington D.C.	179	638432
Florida (FL)	Tallahassee	151940	9746342
Georgia (GA)	Atlanta	152577	5463105
Hawaii (HI)	Honolulu	16760	964691
Idaho (ID)	Boise	216431	944038
Illinois (IL)	Springfield	145934	11426596
Indiana (IN)	Indianapolis	93719	5490260
Iowa (IA)	Des-Moines	145752	2913808
Kansas (KS)	Topeka	213097	2364236
Kentucky (KY)	Frankfort	104659	3660257
Louisiana (LA)	Baton Rouge	123678	4206312
Maine (ME)	Augusta	86156	1125027
Maryland (MD)	Annapolis	27091	4216975
Massachusetts (MA)	Boston	21456	5737037
Michigan (MI)	Lansing	151585	9262078
Minnesota (MN)	St. Paul	218601	4075970
Mississippi (MS)	Jackson	123515	2520638
Missouri (MO)	Jefferson city	180515	4916759
Montana (MT)	Helena	380849	786690
Nebraska (NE)	Lincoln	200349	1569825
Nevada (NV)	Carson City	286353	800493
NewHampshire (NH)	Concord	24033	920610
New Jersey (NJ)	Trenton	20168	7364823
New Mexico (NM)	Santa Fe	314923	1302981
New York (NY)	Albany	127190	17558072
North Carolina (NC)	Raleigh	136413	5881813
North Dakota (ND)	Bismarck	183118	652717
Ohio (OH)	Columbus	107045	10797624
Oklahoma (OK)	Oklahoma City	181186	3025290
Oregon (OR)	Salem	251419	2633149
Pennsylvania (PA)	Harrisburg	117348	11863895
Rhode Island (RI)	Providence	3139	947154
South Carolina (SC)	Columbia	80583	3121833
South Dakota (SD)	Pierre	199730	690768
Tennessee (TN)	Nashville	109153	4591120
Texas (TX)	Austin	691030	14229288
Utah (UT)	Salt Lake City	219888	1461037
Vermont (VT)	Montpelier	24900	511456
Virginia (VA)	Richmond	105587	5346818
Wahington (WA)	Olympia	176480	4132180
West Virginia (WV)	Charleston	62758	1950279
Wisconsin (WI)	Madison	145436	4705521
Wyoming (WY)	Cheyenne	253325	469557

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* Postal two-letter (both capitals) abbreviations for U.S. states were introduced with the ZIP Code in 1963. These are fast replacing the older abbreviations.

Territories and other outlying areas

Place	Area sq km)	Population
Puerto Rico	9104	3187570[1]
Virgin Islands, U.S.	342	95591[1]
Guam	541	105821[1]
American Samoa	199	32395[1]
Canton Island and Enderbury Island	70	0
Midway Islands	5	2256[2]
Wake Island	8	1647[3]
Johnston Island and Sand Island	1.3	378[4]
Northern Mariana Islands	477	16758[5]
Trust Territory of the Pacific Islands	1380	126000[5]

1980 census. [2] 1975 est. [3] 1970 census. [4] 1978 est. [5] 1980 est.

President: Ronald Reagan. Vice-president: George Bush.

Mission in India: Embassy of USA, Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 600651.

Consulates: Bombay– Lincoln House, 78 Bhulabhai Desai Road, Bombay-400 026.

Calcutta: 5/1 Ho Chi Minh Sarani, Calcutta-700 071. Tel: 44-3611.

Madras: 220, Annasalai, Madras-600 006. Tel: 473040.

USSR

Cap: Moscow; **Area:** 2,24,00,000 sq km; **Pop.** 27,57,61,000; **Lang:** Russian; **Rel:** (see below) **Currency:** Rouble. US $1=0.92 Rouble.

USSR, the largest country in the world in point of area, stretches across the continents o Asia and Europe. The country extends for over 9600 km from the Baltic Sea to the Pacific Ocean and for 4800 km from north to south. In the west it reaches the Gulf of Finland in Europe and in the east the North Pacific Ocean in Asia. In the far north east, the Bering strai separates it from Alaska.

The Soviet Union includes within its bound aries 15 Union Republics, 20 Autonomous Republics and 8 Autonomous Regions.

These are the 15 Republics and their capitals: ⭑RSFSR-Moscow; Ukraine-Kiev; Uzbekistan-Tashkent; Kazakhstan-Alma-ata; Belorussia-Minsk; Azerbaijan-Baku; Georgia-Tibilisi; Moldavia-Kishinev; Tadzhikistan-Dushanbe; Kirgizia-Frunze; Lithuania-Vilnius; Armenia-Yerevan; Turkmanisa-Ashkhabad; Latvia-Riga; Estonia-Tallinn.

Constitution and Government: The Communist party with 19 million members (1986) plays a leading role in government and is the substantial policy-making body. The supreme organ of the party is the Congress which lays down policy and elects the Central Committee. The Central Committee forms the Politbureau and the Secretariat.

Economy: USSR has a planned economy. Planning is based on public ownership in industry and trade and on state and collective or co-operative ownership in agriculture.

Languages: Russian is the dominant language of the Union. Other national languages which number about 130 are also spoken and written.

Religion: All religions including, no-religion, are permitted in the USSR. Separate figures showing the adherents of various faiths are not available.

The new Constitution adopted by the Supreme Soviet of the USSR on 7th Oct. 1977 spells out "statutory obligations on deputies, enterprises and officials for fulfilment of the electors' mandates".

Union Republics of USSR

Republic	Area sq km	Population (million)
Russian SFSR	17075000	142.1
Ukrainian SSR	603700	50.7
Kazakh SSR	2717300	15.6
Uzbek SSR	447400	17.5
Byelorussian SSR	207600	9.9
Azerbaijan SSR	86600	6.5
Georgian SSR	69700	5.2
Moldavian SSR	33700	4.1
Lithuanian SSR	65200	3.5
Kirghiz SSR	198500	3.9
Tadzhik SSR	143100	4.4
Armenian SSR	29800	3.3
Latvian SSR	63700	2.6
Turkmen SSR	488100	3.1
Estonian SSR	45100	1.5

⭑ Russian Federation of Soviet Republics

Chairman of the Presidium of the Supreme Soviet (Head of State): Andrei Gromyko. **General Secretary, CPSU, Central Committee:** Mikhail Gorbachev. **P.M.:** Nikolai Ryzhkov.

Mission in India: Embassy of the USSR, Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 606026.

Consulates: Bombay– Palm Beach, 42, L. Jagmohandas Marg (Old Nepean Sea Road);

Calcutta: 31, Shakespeare Sarani, Calcutta-700 017. Tel: 44-4982.

Madras: Consulate General, 14, Santhome High Road, Madras-600 004. Tel: 71112.

URUGUAY

Cap: Montevideo; **Area:** 1,76,215 sq km; **Pop:** 29,90,000; **Lang:** Spanish; **Rel:** Christian; **Currency:** Nuevo Peso. US$1=90.05 NP

Uruguay is the smallest republic in South America. It lies on the north bank of the estuary of the River Plate with Brazil to the north and Argentina to the west.

Uruguay, once a part of the Spanish Empire and later a province of Brazil, became independent in 1825.

Livestock raising is Uruguay's principal occupation and takes up 60 per cent of its total land area. The chief products are meat, wool, hides, corn, wheat, citrus fruit, rice, tobacco, oats and linseed. Important industries are vinery, meatpacking and textiles.

President: Julio Maria Sanguinetta.

VANUATU

Cap: Villa; **Area:** 14,760 sq km; **Pop:** 117 000; **Lang:** English, Pidgin; **Rel:** Christian; **Currency:** Vatu.

New Hebrides became independent under the name Vanuatu on July 1, 1980. It is a double chain of 13 large and 80 small islands in the Pacific. The largest island is the Espiritu Santo. Originally a haunt of European pirates, they came under the control of France and Britain in 1906.

The population is overwhelmingly Melanesian. The major cash crops are copra, coffee and cocoa. Piggery is well developed. Manganese has been mined since 1961 and exported to Japan.

PM: Walter Hadye Lini.

VATICAN CITY STATE

Cap: Vatican City; **Area:** 0.4 sq km; **Pop:** about 1000; **Lang:** All languages accepted; **Rel:** Christian—Catholic.

Vatican City, the City of the Pope, is an independent sovereign state and includes St. Peter's Cathedral, Vatican Palace and Museum, the Vatican Gardens and neighbouring buildings. Vatican has its own railway station, postal system and police.

Supreme Pontiff: Pope John Paul II (Karol Wojtyla). **Secretary of State:** Cardinal Agostino Casaroli.

Mission in India: Apostolic Nunciature, 50-C, Nitimarg, Chanakyapuri, New Delhi-110 021. Tel: 606921.

VENEZUELA

Cap: Caracas; **Area:** 912,050 sq km; **Pop:** 17 819 000; **Lang:** Spanish; **Rel:** Christian; **Currency:** Bolivar, US$1=13.40 Bolivar.

Venezuela (sixth largest country in South America) is the northernmost state of South America. Formerly a Spanish colony, Venezuela (Little Venice) became independent in 1821.

Venezuela is rich in minerals. It is one of the world's leading producers of oil and is a member of the OPEC. Oil prosperity is evident everywhere. Venezuela is rich in diamonds and ranks 8th in world production. Other minerals are iron, steel, aluminium, copper, tin and manganese. Agricultural products include coffee, cocoa, black beans, bananas, maize, rice and sugar.

President: Jaime Lusinchi.

Mission in India: Embassy of Venezuela, N-114, Panchashila Park, New Delhi-110 017. Tel: 6436783.

VIETNAM

Cap: Hanoi; **Area:** 329,566 sq km; **Pop:** 58 307 000; **Lang:** Vietnamese; **Rel:** Taoism and Buddhism; **Currency:** Dong. US$1=10.93 Dong.

The Socialist Republic of Vietnam (comprising of former North and South Vietnam) is a mountainous country. Running almost its entire length, is a mountain chain—the Annamite Chain. On one side of the mountain chain is the fertile Red River delta in the north and on the other side is the Mekong delta in the south. The two deltas form the rice bowl of the country.

The country is primarily agricultural. Rice is the dominant crop and an export item. Other crops are rubber, sugarcane, coffee and tea. Minerals include coal, tin, copper, chromium and phosphates in the north. Industries like cememt, metallurgy, chemicals, paper and textiles are found in the south.

President: Vo Chi Cong; **PM:** Pham Hung.

Mission in India: Embassy of Vietnam, No. 2, Navjeevan Vihar, New Delhi-110 017. Tel: 669843.

WESTERN SAMOA

Cap: Apia; **Area:** 2835 sq km; **Pop:** 156349; **Lang:** Samoan and English; **Rel:** Christian: **Currency:** Tala (Dollar), US$1=2.21 Tala.

Western Samoa comprises 4 islands in the South Pacific Ocean, the largest of them being Savaii and Upolu. The International Date Line passes very near Western Samoa. Eastern Samoa (American Samoa) with its capital at Fagotogo remains a dependency of the USA.

Western Samoa became fully independent on January 1, 1962 and is a member of the Commonwealth.

The economy is mainly agricultural. The chief products are fish, copra, cocoa, bananas, taro, sweet potatoes, bark cloth and mats.

Head of State for life: Malietoa Tanumafili II. **PM:** Tofilau Eti Alesana.

YEMEN (NORTH)

Cap: Sana'a; **Area:** 195,000 sq km; **Pop:** 8 556 974; **Lang:** Arabic; **Rel:** Islam; **Currency:** Rial. US$1=6.45 Rial.

The Yemen Arab Republic is in the south west of the Arabian peninsula. It was established on Sep. 27, 1962.

The main agricultural products are coffee, dates, herbs, fruits, millet and maize. Cotton, coffee, hides and skins are exported.

Head of State: Ali Abdullah Saleh, **PM:** Maj. Abdel Aziz Abdel Ghani.

Mission in India: Embassy of Yeman Arab Republic, B-55, Paschimi Marg, Vasant Vihar, New Delhi-110 057. Tel: 674472.

Consulate: Bombay—102 Maker Towers 'F', 10th Floor, Cuffe Parade.

YEMEN (SOUTH)

Cap: As Shaab (Aden); **Area:** 463,576 sq km; **Pop:** 2 066 000; **Lang:** Arabic; **Rel:** Islam; **Currency:** Dinar. US$1=0.343 Dinar.

The People's Democratic Republic of Yemen, (South Yemen) comprises a strategic port (Aden) and a large area of mainly desert territory on the southern shore of the Arabian peninsula.

South Yemen (formerly Aden and the Protectorate of South Arabia) became independent on Nov. 30, 1967.

The economy is chiefly agricultural. The main crops are sorghum, sesame, millets, wheat and barley.

Chariman of the Presidium of the Supreme People's Council: Haider Abubaker Al-Attas; **P.M.:** Yassen Said Noman.

Mission in India: Embassy of People's Democratic Republic of Yemen, B-70, Greater Kailash 1, New Delhi-110 048. Tel: 6414623.

YUGOSLAVIA

Cap: Belgrade; **Area:** 255,804 sq km; **Pop:** 23,123,000. **Lang:** Serbo-Croatian, Slovian and Macedonian; **Rel:** Christian and Islam; **Currency:** Dinar.

Yugoslavia, a Balkan state, is made up of six republics—Serbia, Croatia, Slovenia, Montenegro, Bosnia-Herzegovina and Macedonia.

The modern state of Yugoslavia has grown out of a petty principality Serbia which was independent since 1878.

Nearly one-third of Yugoslavia is forest. The chief crops are wheat, maize, and potatoes. The principal minerals are coal, iron, manganese and lead.

President: Lazar Mojsov; **PM:** Branko Mikulic.

Mission in India: Embassy of Yugoslavia, 3/50 Niti Marg, Chanakyapuri, New Delhi-110 021. Tel: 606022.

Trade Commission: Bomaby—Vaswani Mansions, 120/4 Dinsha Wachha Road.

ZAIRE

Cap: Kinshasa; **Area:** 2,344,885 sq km; **Pop:** 32 084 000; **Lang:** French & Kiswahili; **Rel:** Christian & Animist; **Currency:** Zaire. US$1=44.86 Zaire.

The Republic of Zaire was known until Oct. 1971 as the Democratic Republic of the Congo, or Congo (Kinshasa) for short. This change of name distinguished it from its neighbour, the Republic of the Congo or the Congo (Brazzaville). In 1971 the country changed the name of River Congo to River Zaire. Originally a Belgian colony, Zaire became independent on June 30, 1960.

The major assets of Zaire are the Katanga copper mines and the diamond deposits in Kasai. The country is rich in other minerals like cobalt, cadmium, manganese, zinc and uranium. The forests abound in high class wood like mahogany, ebony and teak. Principal agricultural products are coffee, palm oil and rubber.

President: Mobutu Sese Seko, **PM:** Prof. Mabi Mulemba.

Mission in India: Embassy of Zaire, 160 Jor Bagh, New Delhi-110 003. Tel: 619455.

ZAMBIA

Cap: Lusaka; **Area:** 752,620 sq km; **Pop:** 6445000; **Lang:** Bantu and English; **Rel:** Christian and Islam; **Currency:** Kwacha. US$1=3.51 Kwacha (after devaluation of Kwacha by 56% in Oct. 1985)

Zambia, a landlocked republic in southern Africa, takes its name from the River Zambezi, one of its biggest rivers. Originally known as Northern Rhodesia, it is separated from Zimbabwe by the Zambezi river. Kariba Dam, one of the biggest man-made dams in the world, is on the Zambezi river where it makes the border between Zambia and Zimbabwe.

Zambia became independent on 24th October 1964 and it is a republic within the Commonwealth.

Principal agricultural products are maize, tobacco, millet, cassava, groundnuts, cotton and sugar.

The country is rich in minerals including copper, zinc, cobalt, lead, uranium and manganese. Although copper mining dominates Zambia's economy, now accounting for 80% of the foreign exchange earnings, the country had made a major shift to agricultural production, as a result of the crippling fluctuations of copper prices in the world market.

President: Kenneth David Kaunda, **PM:** Kebby Silio Kambulu.

Mission in India: High Commission of Zambia, 14 Jor Bagh, New Delhi-110 003. Tel: 619294.

ZIMBABWE

Cap: Harare; **Area:** 390,272 sq km; **Pop:** 8 461 000; **Lang:** English, Shona and Ndebela; **Rel:** Tribal and Christian; **Currency:** Dollar. US$1=Z$1.65.

Zimbabwe, formerly Southern Rhodesia, lies in south central Africa. Zimbabwe achieved independence after a bitter struggle against the white minority government in power.

Zimbabwe is rich in minerals notably copper, nickel, gold, asbestos, chrome and coal. The Wankie Colliery is the largest coal mine in the world. Industries include food processing, metals, textiles and engineering. Maize, groundnuts, cotton, and tobacco are the chief crops, tobacco being the most important one.

President: Canaan Banana. **PM:** Robert G. Mugabe.

Mission in India: High Commission for the Republic of Zimbabwe, B-1/42, Safdarjung Enclave, New Delhi-110 029. Tel: 608598.

DEPENDENCIES

All dependencies are remnants of the colonial empires established by European powers. None of them are sovereign. Dependencies listed below are grouped under the following heads: 1. Australia, 2. Britain, 3. Chile, 4. Denmark, 5. Ecuador, 6. France, 7. Netherlands, 8. New Zealand 9. Norway, 10. Portugal, 11. Spain, 12. U.S.A.

1. Australia

Australian Antarctic Territory. Area: 6,442,372 sq km. A barren wasteland in Antarctica claimed by Australia in 1936.

Christmas Island. Area: 135 sq km; Pop: 3260. An island in the Indian Ocean which Australia acquired in 1958. It is noted for its phosphate production.

Cocos (Keeling) Islands. Area: 14 sq km. Pop: 1038; Cap: Bantam. The territory comprising 27 small islands in the Indian Ocean was given to the Clunies-Ross family by Queen Victoria in 1886. Australia bought the islands for 7.2 million dollars in 1978.

Heard and McDonald Islands. Area: 368 sq km. These islands in the Indian Ocean are uninhabited. They were transferred to Australia by Britain in 1947.

Norfolk Islands: Area: 30 sq km; Pop: 2287; Cap: Kingston. These islands about 1600 km from Australia are in the Tasman sea. There had been a settlement since 1856 when the descendants of the Bounty mutineers were transferred there from Pitcairn. (See Pitcairn infra).

2. Britain

Most of the British colonies have acquired Associate status and are no longer treated as dependencies.

Anguilla. Area: 91 sq km; Pop: 6758; Cap: The Valley. Anguilla is one of the northernmost Caribbean islands. In 1976 Britain granted Anguilla local autonomy, with an elected assembly. Anguillans have been demanding complete independence. Fishing is the main industry.

British Antarctic Territory. Area: over 100,000 sq km. This territory comprises South Shetland Islands, South Orkney Islands and a large slice of territory on Palmer Peninsula, in Antarctica. They are mostly uninhabited.

British Indian Ocean Territory. Area: 78 sq km; Pop: 2000. This territory in the Indian Ocean about 1120 km south of India covers the Chagos Archipelago. The three main islands in this group are Diego Garcia, Peros Banhos and Salomon. Diego Garcia is a U.S. naval base now.

British Virgin Islands. Area: 153 sq km; Pop: 12,796; Cap: Road Town. These comprise 36 islands and islets in the Caribbean Sea. It is governed by a crown administrator aided by a local council and a partly elected legislature. Livestock rearing, fishing and farming form the main occupations.

Cayman Islands. Area: 259 sq km; Pop: 11,194; Cap: Georgetown. The Cayman Islands in the Caribbean Sea comprise three main islands—Grand Cayman, Little Cayman and Cayman Brac. It is governed by an administrator assisted by a local council and an elected assembly. The population is polyglot. Tourism is the main industry.

Falkland Islands. Area: 11,961 sq km; Pop: 2010; Cap: Stanley. Falklands Crown Colony comprises two principal islands, East Falkland and West Falkland. South Georgia, a whaling settlement, and South Sandwich Islands form part of the colony. These islands were settled at different times by the French, the British and the Argentinians. Argentina still claims these islands, which they call *Malvinas*.

In 1982 Argentina forcibly occupied these islands but they were finally reoccupied by Britain. The islands continue to be a bone of contention between Argentina and Britain.

Gibraltar. Area: 6 sq km; Pop: 31,441. The Rock of Gibraltar, known as the key to the Mediterranean, is a peninsula jutting into the Mediterranean from Spain's southwest coast. Both Spain and France have laid claim to it. In 1967, a referendum voted overwhelmingly in favour of British control. This has not satisfied Spain, which still counts Gibraltar as part of its territory.

Hong Kong (see *Independent States)*

Pitcairn Islands. Area: 48 sq km; Pop: 124; Cap: Adamstown. Pitcairn Islands include Pitcairn proper as well as three uninhabited islands, Henderson, Ducie and Oeno. They are about 1920 km south of Tahiti. Pitcairn was located by the mutineers on H.M.S. Bounty, in 1790, when they were looking for an unknown hideout for themselves. They knew that if they were captured by the British navy, they would all be hanged. Therefore, after sojourn for a few days at Tahiti, from where they took some women, they retired to Pitcairn, which was uninhabited then. When Britain acquired control of the island in 1898, they transferred the descendants of the mutineers to Norfolk Island.

St. Helena. Area: 122 sq km; Pop: 3200; Cap: Jamestown. St. Helena is in South Atlantic about 1920 km west of Africa. St. Helena includes Ascension Island about 1120 km northwest of St. Helena and Tristan du Cunha and three other islands. St. Helena is famous in history as the island to which Napoleon was exiled after his defeat at Waterloo in 1815.

Turks and Caicos Islands. Area: 430 sq km; Pop: 6228; Cap: Cockburn Town. The main islands of this group, in the Caribbean Sea, are Grand Turk and Salt Cay (Turks) and south and north Caicos (Caicos). In 1962, the islands were granted partial autonomy being administered by a Crown representative with the help of a local council and partly elected legislature. The population is mostly black. Salt, crayfish and şisal are the major exports.

3. Chile

Easter Island. Cap: Hangaroa; Area: 163 sq km; Pop: 1000. Easter Island is a volcanic island in the South Pacific about 3760 km west of Chile. Its archaeological remains show that it had a very ancient civilization. The main occupation today is cultivation.

Juan Fernandez. Area: 148 sq. km; Pop: 615. This group of islands is located about 640 km west of the Chilean coast. It contains two major islands—Robinson Crusoe and Alexander Selkirk. Daniel Defoe is believed to have based his story of Robinson Crusoe on the four-year confinement of the Scottish sailor Alexander Selkirk on the Robinson Crusoe island. Lobster fishing is the main occupation of the islanders.

Chilean Antarctic Territory. Area: 1,249,993 sq km; Pop: 200. This is the portion of the Palmer peninsula of the Antarctic that Chile has claimed for its own.

Diego Ramirez Islands. This is a group of uninhabited islands, lying some 100 km southwest of Cape Horn.

Salay Gomez, San Ambrosio and San Felix Islands. These are three separate uninhabited islands in the Pacific, which are in the possession of Chile.

4. Denmark

***Greenland:* Area:** 21,75,600 sq km.; **Pop:** 59,862; **Cap:** Godthaab.

Greenland, the largest island in the world, lies to the north of North America. Around 84% of the surface is covered by an ice-cap with an average thickness of 500 feet. Most of the inhabitants are of mixed European and Eskimo origin. The main industry is fishing.

In 1979, Denmark handed over local government to the Greenlanders. Greenlandic (Eskimo language) replaced Danish as the official language. Foreign relations are controlled by Denmark.

Faeroe Islands. Area: 1399 sq km; Pop: 41,929; Cap. Thorshavn. Faeroe islands lie in the Atlantic between Scotland's Shetland Islands and Iceland. The islands are 19 in number of which 17 are inhabited. The largest island is Stromo on which the capital Thorshavn stands. The main industry is fishing. The principal language is Faeroese. Home rule was granted in 1948. An elected Parliament controls the local administration. Two Faeroese delegates sit in the Danish Parliament.

5. Ecuador

Galapagos Islands. Area: 7842 sq km; Pop: 3100; Cap: Baquerizo Moreno. Galapagos islands are a group of 60 volcanic islands, which lie in the Pacific, about 1040 km west of Ecuador. They have a unique assortment of fauna and were declared a National Park in 1936, so as to protect its wild life. The giant tortoise found on these islands is said to be the longest living animal in the world with a life span of 200 years.

French Guiana. Area: 91,000 sq km; Pop: 61744; Cap: Cayenne. French Guiana is on the northern coast of South America. Devil's Island in Guiana served as a penal colony for France, for nearly a hundred years from 1852. In 1946, Guiana was made an overseas department of France with representation in French Parliament.

French Polynesia. Area: 4000 sq km; Pop: 1,47,518; Cap: Papeete. The French Ploynesian islands numbering around 130 lie in the South Pacific. For administrative purpose, they are grouped together as follows. *1. Windward Islands.* (including Tahiti and Moorea) *2. Leeward Islands, 3. Tuamoto and Gambier Islands. 4. Austral Islands* and *5. Marquesas Islands.* The population is almost entirely Polynesian.

One of these islands-Muruora-about 1150 km. southeast of Tahiti was used as a nuclear testing site by France in 1966 and 1968 and even as late as 1985.

Guadeloupe. Area: 1799 sq km; Pop: 3,29,634; Cap: Basse-Terre. Guadeloupe proper comprises two islands–Basse–Terre and Grand Terre–separated by a narrow channel. They are in the Leeward Islands of Lesser Antilles. The islands of Marie Galante, Les Saintes, La Desirade and St. Barthelemy are part of Guadeloupe.

Martinique. Area: 1102 sq km; Pop: 3,24,832; Cap: Fort-de-France. Martinique is one of the Windward Islands of Lesser Antilles. The island is mainly known for its volcanic mountain, Mount Pelee, which erupted in 1902 in one of the most devastating earth-quakes known to history. Martinique is an overseas department of France.

Micronesia: End Of Trusteeship

The UN Trusteeship Council in June, 1986 adopted a resolution on the future of the trust territory of the Pacific islands (Micronesia) by which the UN trusteeship agreement would be terminated.

The resolution asked the United States to consult with the four parts of the territory on a date for their new status.

Micronesia is the last of the original 11 trust territories under the UN.

The resolution, co-sponsored by France and Britain, noted that the peoples of component parts– the Northern Marianas, the Marshall islands, the Federated States of Micronesia and Palau– had freely exercised their right to self-determination in plebiscites observed by the Trusteeship Council. Three of them had chosen free association with the US while the fourth, the Northern Marianas, had opted for Commonwealth status.

Mayotte. Area: 373 sq.km; Pop: 48518; Cap: Dzaoudzi. Mayotte lies in the Mozambique channel between East Africa and Zanzibar. A part of the Comoro Islands, Mayotte chose to remain a French dependency while the rest of the Comoros became independent in 1975.

New Caledonia. Area: 19058 sq km.; Pop: 1,47,536; Cap: Noumea. New Caledonia territory comprises several island groups in South Pacific, located about 1200 km east of Australia. Besides New Caledonia, there are the Loyalty Islands, about 125 km to the east (of New Caledonia), Chesterfield Islands, about 540 km to the northwest and the Isle of Pines, about 48 km to the south-east. New Caledonia has large reserves of nickel, iron, manganese and chrome. An overseas territory of France, it is administered by a governor, assisted by a popularly elected council.

Reunion. Area: 2510 sq km; Pop: 5,09,855: Cap: St. Denis. Reunion is a volcanic island in the Indian Ocean and lies about 720 km east of

Madagascar. The island was settled by France in 1605. About 25 per cent of the population are of French extraction. The island has a prosperous economy based on sugar cane. It was made an overseas department of France in 1946.

St. Pierre and Miquelon. Area: 42 sq km; Pop: 5840; Cap: St. Pierre. These islands lie in the Atlantic Ocean about 24 km southwest of Newfoundland. Most of the present population are descended from the early French and Basque settlers of the 17th century. Fishing is the main industry. The islands were made a department of France with local autonomy in 1975.

Southern and Antarctic Territory. Area: 7557 sq km; Pop: 183; Cap: Port aux Francais. This territory comprises two archipelagos in the south Indian Ocean–Kerguelen and Crozet–, two islands Saint Paul and New Amsterdam and an area on the mainland of Antarctica. Research stations, hospitals and army bases are located on Kerguelen and New Amsterdam islands. The rest of the territory is uninhabited.

Wallis and Futuna. Area: 200 sq km; Pop: 9400; Cap: Mata Utu. Wallis and Futuna are two small groups of islands in the Pacific and lie about 400 km west of Samoa. The population is largely Polynesian and the only occupations are connected with copra and fishing. Made an overseas territory of France in 1961, it is governed by an administrator assisted by a council made up of the chiefs of the three main islands and three nominated members.

7. Netherlands

Netherlands Antilles. Area: 961 sq km; Pop: 2,63,504; Cap: Willemstad. Netherlands Antilles consists of two groups of islands in the Caribbean sea– Windward Islands and Leeward Islands. The Windward Islands comprise Curacao, Aruba and Bonaire. Leeward Islands include Saba, St. Eustatius and St. Maarten (part of St. Martin Island shared with Guadeloupe). The Windward Islands are volcanic and largely arid but Curacao and Aruba yield oil and have a prosperous economy based on petroleum and phosphate. Mining is another paying occupation. The Netherlands Antilles became a co-equal part of the Kingdom of Netherlands in 1954. The movement for independence is gaining ground in the islands.

8. New Zealand

Cook Islands. Area: 234 sq km; Pop: 18,127; Cap: Avarua. The Cook Islands are a group of small islands in South Pacific. Rarotonga is the largest island on which the capital Avarua stands. They became a British protectorate in 1888 and were annexed to New Zealand in 1901. Under a constitution adopted in 1965, the islands have full internal self-government in association with New Zealand.

Niue. Area: 259 sq km; Pop: 3556; Cap: Tutukla. Niue, geographically part of the Cook islands, has been separately administered since 1903. In 1974, Niue was granted self-government with a Prime Minister and a 14-member elected assembly.

Ross Dependency. Area: 4,14,398 sq miles. This territory consists of part of the mainland of Antarctica and some islands. New Zealand claimed this territory in 1923. The region includes a whaling centre and a research station.

Tokelau. Area: 10 sq km; Pop: 1700; This territory comprises 3 atolls about 480 km. north of Western Samoa. Once part of the Gilbert and Ellice islands, they were made New Zealand territory in 1925. The population is Polynesian. Copra is the major export.

9. Norway

Bovet Island. Uninhabited island in South Atlantic. Became a dependency of Norway in 1930.

Peter I Island. Uninhabited island in Antarctica. Became a dependency in 1933.

Queen Maud Land. An area in Antarctica claimed by Norway in 1939.

10. Portugal

Azores Islands. Area: 2336 sq km; Pop: 250,892; Cap: Porta Delgade. The islands of Azores are in the Atlantic Ocean, about 1200 km west of Europe. The Azores group includes 9 main islands and several smaller ones. The U.S. maintains an air base on Terceira island in the Azores. In 1976, internal self-government was granted to the Azores. But the Azoreans are clamouring for independence.

Macao (see *Independent States*)

Madeira Islands. Area: 795 sq km; Pop:

Last Vestiges of Colonialism

The last vestiges of colonialism will disappear from China in 1999 under an agreement initialled in March 1987 in Beijing between China and Portugal. The tiny Portuguese colony of Macao will then return to Chinese sovereignty after 400 years.

The signing ceremony was in the Great Hall of the People. A joint statement which set the date of Macao's return at December 20, 1999, was initialled by China's Vice Foreign Minister, Mr. Zhou Nan and Portugal's Ambassador to the United Nations, Mr. Rui Medina. They headed their delegations in the nine-month long negotiations.

267,491; Cap: Funchal. Madeira lies in the Atlantic Ocean 960 km south west of Portugal. The islands comprise two principal islands—Madeira and Portosanto—and several smaller islands, which are uninhabited. In 1976 Portugal granted Madeira full internal autonomy.

11. Spain

Balearic Islands. These islands are in the Mediterranean off the south coast of Spain. Majorca, Minorca, Ibiza and Formentera are the largest islands. The islands have a very ancient civilization dating from the Phoenicians. Spain granted limited autonomy to these islands in 1978.

Canary Islands. Area: 7273 sq km; Pop: 1,256,650; Cap: Las Palmas and Santa Cruz. The Canary Islands lie in the Atlantic off the north west coast of Morocco. Of the 13 islands comprising the group, the largest are Grand Canary, Tenerife and Fuerte Ventura. In 1927 the islands were divided into two provinces—one with its capital at Las Palmas on Grand Canary and the other with its capital at Santa Cruz on Tenerife.

The islands are volcanic and mountainous, the highest peak Pico de Teide in Tenerife rising above the snow level to 12,198 feet.

12. United States

Guam. Area: 500 sq km; Pop: 70,000; Cap: Agana. An island in the Indian Ocean administered by U.S. as an 'unincorporated' territory.

Midway Islands. Area: 5 sq km; Pop: 2356. A group of islands in the North Pacific Ocean, an incorporated territory of U.S.

Marshall, Caroline and Marina Islands. Area: 1500 sq km; Pop: 126,440; Cap: Saipan. U.S. Trust Territory in the Pacific under a High Commissioner.

Wake Island. Area: 6 sq km; Pop: 1763. U.S. unincorporated territory in the Pacific.

LANGUAGES

No one has yet taken a satisfactory count of the world's languages. There are many estimates. They vary by thousands. The main cause of confusion is how to distinguish a language from a dialect.

Linguists have not agreed as to what distinguishes a language from a dialect. In view of this, differing estimates are quite possible and admissible. We have here adopted the estimate of some French and American linguists who have listed a total of 2796 languages.

Of the 2796 languages mentioned, over 1200 are spoken by American–Indian tribes, most of which do not number more than a thousand people. African–Negro groups speak some 700 different languages while the natives of Australia, New Guinea and other Pacific islands account for as many as 500 languages of their own. Add to this an estimated 200 minor languages of Asia of unknown origin and we find that the total number of the world's major languages (spoken by a million or more people) hardly exceeds 160; in other words, the overwhelming majority of the world's languages, say 85 per cent, are spoken by numerically small groups, while some 15 per cent represent major languages.

The world's languages considered as families fall into 10 broad groups. 1. Indo-European, 2. Semito-Hamitic, 3. Sino-Tibetan, 4. Dravidian, 5. Ural-Altaic, 6. Malayo-Polynesian, 7. African-Negro, 8. American-Indian, 9.

Caucasian, 10. Miscellaneous.

1. Indo-European Family†. The Indo-European languages may be subdivided into four major divisions. (a) *Germanic* includes English, German, Dutch, Swedish, Danish, Norwegian and Icelandic. (b) *Romance* includes French, Spanish, Portuguese, Italian and Romanian. (c) *Balto-Slavic* includes Russian, Polish, Ukrainian, Czech, Slovak, Serbo-Croatian and Bulgarian. (d) *Indo-Iranian* group may be conveniently divided into *Iranian* and *Indic* or Indo-Aryan branches. *Sanskrit* or the Indic branch is the original Indo-Iranian language that was brought into India by the Aryan immigrants. It is the earliest of the Indo-European languages to appear in recorded form.

2. Semito-Hamitic Family comprises Arabic, Hebrew, Libyan, Berber, Galla, Amharic (Ethiopia) and Somali languages.

3. Sino-Tibetan Family is dominated by Chinese, which with its many dialects commands 700 million speakers out of a total of about 760 million for the whole family. Tibetan, Burmese, Thai, Japanese and Korean languages form the rest of the family.

4. Dravidian Family includes the major languages of South India, Tamil, Telugu, Kannada and Malayalam.

5. Ural-Altaic Family includes Finnish, Hungarian, Turkish, Mongol and Manchu.

6. Malayo-Polynesian Family comprises Maori (native to New Zealand), Malagasy (Madagascar), Malay and Indonesian.

7. African-Negro group covers the major African languages, Sudanese, Guinean, Bantu, Hausa (Nigeria), Swahili and others.

8. American-Indian Family comprises many languages of the Red Indian tribes and includes the languages of the Eskimos and Aleuts.

9. Caucasian Family consists of a number of small languages like Georgian and Circuosian.

10. Miscellaneous. Among the lesser families, the *Austric family* apparently commanded a wide circulation in very ancient times. It is at present represented by tribal tongues like the *Munda* group in India. The aboriginal languages of Australia, Tasmania and New Guinea apparently belong to this group.

Basque, which is spoken on both sides of the Pyrenees in Europe, appears to be a remnant of a language family called Mediterranean, which has long since disappeared. The present speakers of Basque number nearly a million.

Basque is a very difficult language. The story goes that the devil tried to learn Basque, so as to tempt and ruin the Basques but gave up the attempt in despair. Basque has no affinity to any European language but bears close resemblance to many American-Indian tongues. Some linguists believe that Basque was the language of the lost continent, Atlantis.

The *Ainu,* the language of the white-skinned people of Hokkondo, the northern-most of Japanese islands, the *Hyperborean* tongues of Siberia and Kamchatka and many other minor groups too numerous to mention make up the rest of the world's languages.

Of the great modern languages, 13 are spoken by 50 million or more people. They are Chinese, English, Hindustani, Russian, Spanish, German, Japanese, Arabic, Bengali , Portuguese, Malay (Indonesian), French and Italian. Approximate estimates of speakers of different languages made by various authorities differ greatly, sometimes by millions. This is so because the speakers of different languages are spread over the whole globe and no statistics beyond so-called guestimates are available about them.

Chinese, the first language in point of the number of speakers is mainly confined to China and Manchuria. *Japanese* is first and foremost the native tongue of the people in Japanese islands, but enjoys some currency in Korea and the nearby area of Asiatic mainland. *Malay* is spoken in Indonesia and Malaysia and is understood as far as the Philippines.

Arabic covers an incredibly huge area from Africa right across Asia and is learned wherever Islam predominates, though it is almost everywhere mingled with other languages of non-Arabic stock like Berber, Cushite and Hebrew.

English covers nearly one-fifth of the Earth's surface. It is spoken by 200 million people in the western hemisphere and includes over 60 million in Europe, some 25 million in Asia, about 5 million in Africa and more than 13 million in Oceania, comprising Australia and New Zealand.

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† The term Indo-Hittite is now preferred to Indo-European. This will include Anatolian language and Indo-European proper

Demise of Classical Greece
A Modern Tragedy

Within the marble colonnades of the Athens Academy, girt by worthy tomes, there is a man who has thought much on Greece and its language. And he has decided that here, in the land of the classics, a heritage is being denied.

Since the teaching of classical Greek was curtailed in many classrooms in 1976, and modern Greek was made the language of administration, said Professor Constantine Trypanis, a former teacher of modern Greek at Oxford University, "the language has become impoverished."

Young people these days, he said, limit themselves to demotic Greek — the modern Greek — and that could have consequences in a land known more for the breadth of thought of ancients than the narrowness of moderns.

"We think through words," the professor, a former president of the Athens Academy, said. "Therefore, if we impoverish the language and take away words, we take away ways of thinking."

His words reflected something of a controversy between those who, like him, favour greater prominence for ancient Greek and for the 19th-century spoken Greek called Katharevousa, and those who champion the demotic.

Decades ago, the dispute spread to fisticuffs in the streets of Athens between supporters of the demotic, associated then with leftist politics, and those who spoke Katharevousa, an artificial hybrid of ancient and modern Greek created 180 years ago, and associated with the elite.

D. J. Perivolaris wrote in the British publication The Economist when the debate spilled into its letters columns: "It now seems that the vast richness and refinement of the Greek language have been gradually reduced to the banality of slang with an average of 500 words in use."

"I cannot help thinking that, if Socrates were to come out of his grave now," he said, "he would again seek the redemption of hemlock to escape the torment of hearing his fellow citizens speaking an alien tongue."

That was matched by a letter from Alex Vardamis, who listed his address at North Dakota. "That the great figures of Greek literature — Kazantzakis, Cavafy and all the rest — without exception chose not to write in Katharevousa indicates that, linguistically, demotic Greek is as capable of accurate expression as any other language," he wrote.

Major Languages

Language	No. of speakers (in million)	Principal Areas
Chinese‡	700	China
English	300	UK, USA, Canada, Ireland, Australia, New Zealand
Russian	200	USSR
Spanish	165	Spain, Latin America
Hindi	153	North India
Japanese	100	Japan
German	100	Germany, Austria Switzerland
Bengali	95	India, Bangladesh
Portuguese	90	Portugal, Brazil
Arabic	90	Middle East North Africa
French	75	France, Beigium Canada, Switzerland
Italian	55	Italy
Indonesian	50	Indonesia
Javanese	45	Java (Indonesia)
Telugu	44	Andhra Pradesh (India)
Tamil	42	Tamil Nadu (India) Sri Lanka
Marathi	41	Maharashtra (India)
Urdu	40	India, Pakistan
Punjabi	40	India, Pakistan
Korean	40	Korea (North & South)
Ukrainian	37	Ukraine (USSR)
Vietnamese	35	Vietnam
Polish	32	Poland
Turkish	30	Turkey
Gujarati	25	Gujarat (India)
Thai	25	Thailand
Malayalam	22	Kerala (India)
Kannada	21	Karnataka (India)
Farsi (Persian)	20	Iran
Burmese	20	Burma
Oriya	19	Orissa (India)
Romanian	18	Romania
Serbo-Croatian	15	Yugoslavia
Hausa	15	Nigeria, Niger
Pushtu	14	Afganistan Pakistan
Bhojpuri	14	Eastern India
Sudanese	13	Sudan
Hungarian	12	Hungary
Dutch	12	The Netherlands
Swahili	12	East Africa
Visayan	12	Philippines
Nepali	10	Nepal
Greek	10	Greece
Czech	9	Czechoslovakia
Assamese	8	Assam (India)
Swedish	8	Sweden
Bulgarian	8	Bulgaria
Belorussian	8	Belorussia (USSR)
Sinhalese	8	Sri Lanka
Amharic	8	Ethiopia
Yoruba	8	Nigeria
Madurese	8	Madura (Indonesia)
Ibo	8	Nigeria
Azerbaijani	7	Azerbaijan (USSR)
Sindhi	7	Pakistan, India
Catalan	6	Spain
Chattisgarhi	6	Madhyapradesh (India)
Magadhi	6	Bihar do
Maithili	6	„ do
Angika	6	„ do
Fulani	6	West Africa
Malagasy	6	Madagascar
Uzbek	6	Uzbekistan (USSR)
Malay	6	Malaysia, Singapore
Chuang	6	China
Tagalog	6	Philippines
Quechua	6	Peru, Bolivia
Danish	5	Denmark
Flemish	5	Belgium
Provencal	5	France
Tartar	5	Tartar (USSR)
Kurdish	5	Turkey, Iraq, Iran USSR
Khmer	5	Kampuchea
Ruanda	5	Ruanda, Congo
Galla	5	Ethiopia
Norwegian	4	Norway
Marwari	4	Rajasthan (India)
Finnish	4	Finland
Yiddish	4	USA, Israel
Slovak	4	Czechoslovakia
Armenian	4	Armenia (USSR)
Kazakh	4	Kazakhistan (USSR)
Tibetan	4	Tibet
Uighur	4	Sinkiang (China) USSR
Twi	4	Ghana
Malinke	4	West Africa
Sotho	4	Lesotho (Africa)
Zulu	4	South Africa
Xhosa	4	do
Lithuanian	3	Lithuania (USSR)
Georgian	3	Georgia (USSR)

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‡ Including (Mandarin-560, Cantonese — 45, Wu-40, Min — 35, Hokka-20)

Hebrew	3	Israel
Santali	3	Eastern India
Yi (Lolo)	3	China
Minangkabau	3	Sumatra (Indonesia)
Ilocano	3	Luzon (Philippines)
Somali	3	Somalia
Mossi	3	Burkina Faso
Albanian	2.5	Albania
Mongolian	2.5	Mongolia (China)
Miao	2.5	China
Buginese	2.5	Celebes (Indonesia)
Kashmiri	2.5	Kashmir (India)
Rajasthani	2	Rajasthan (India)
Moldavian	2	Moldavia (USSR)
Lao	2	Laos
Achinese	2	Sumatra (Indonesia)
Balinese	2	Bali (Indonesia)
Bikol	2	Luzon (Philippines)
Ganda	2	Uganda
Nyanja	2	Malawi, Zambia
Mbunda	2	Angola
Makua	2	Mozambique
Afrikaans	2	South Africa
Mayan	2	Mexico, Guatemala
Guarani	2	Paraguay
Latvian	1.5	Latvia (USSR)
Slovenian	1.5	Yugoslavia
Mordvin	1.5	Mordavia (USSR)
Chuvash	1.5	Chuvash (USSR)
Tadzhik	1.5	Tadzhikistan (USSR)
Gondi	1.5	East India
Shan	1.5	Burma
Karen	1.5	Burma
Batak	1.5	Sumatra (Indonesia)
Sidamo	1.5	Ethiopia
Kikuyu	1.5	Kenya
Kongo	1.5	Congo
Luba	1.5	Congo
Bemba	1.5	Zambia
Bhili	1	Gujarat (India)
Welsh	1	Wales
Breton	1	Brittany (France)
Macedonian	1	Macedonia (Yugoslavia)
Estonian	1	Estonia (USSR)
Bashkir	1	Bashkir (USSR)
Turkmen	1	Turkmen (USSR)
Kirgiz	1	Kirgiz (USSR)
Baluchi	1	Pakistan, Iran
Dayak	1	Borneo (Indonesia)
Tulu	1	Karnataka (India)
Wolof	1	Senegal
Mende	1	Sierra Leone
Ewe	1	Ghana, Togo
Fon	1	Dahomey
Kanuri	1	West Africa
Fang	1	Gabon, Cameroon
Drinka	1	Sudan
Lingala	1	Congo
Mangbetu	1	Congo
Rundi	1	Burundi, Congo
Kamba	1	Kenya
Luo	1	Kenya
Sukuma	1	Tanzania
Tigrinya	1	Ethiopia
Shona	1	Zimbabwe
Tswana	1	Botswana, South Africa

Russian dominates one-sixth of the total area of the Earth, being the national language throughout the Soviet Union. But Russian is used as a native tongue only by half the population of Soviet Russia. The rest speak some 145 different languages

Spanish appears in its homeland Spain and the ex-Spanish colonies. But these account for only a quarter of the Spanish-speaking population. The rest (three-fourths) are in the western hemisphere, covering Mexico, Central America, Cuba, Puerto Rico, the Dominican Republic and all South American countries barring Brazil and the Guianas.

Portuguese is spoken in Portugal and the ex-Portuguese colonies. But the greatest number of Portuguese speakers is concentrated in Brazil.

German is practically confined to Europe where it is spoken in Germany, Austria and most of Switzerland. But it enjoys wide currency as a scholastic language all over Europe, especially in Czechoslovakia, Poland, the Netherlands, Hungary, Yugoslavia, Sweden and Norway, where it is spoken by an estimated 20 million people.

French is the language of France, part of Switzerland, Belgium, ex-French possessions or Departments overseas and Canada (especially the province of Quebec). It is reputed as a language of culture in Europe, and is spoken by some 5 million non-French men, in addition to their mother tongues.

Italian, the language of Italy, is current in the former Italian colonies, Eritrea, Somaliland, Libya and Cyrenica and is used by Italian emigrant groups numbering some 10 million, living in various Mediterranean countries, and USA, Argentina, Brazil, Uruguay and Chile.

RELIGIONS

Religions have played a very great part in the evolution of human civilzation and culture. They evolved as a set of beliefs concerning the cause, nature and purpose of the universe and grew as an organised system of beliefs that bound people to become a close-knit society. Very often the religions spread out from the lands of their origin.

Hinduism, has left its permanent impact on Indian life and culture. Buddhism wrought revolutionary transformation in the life and culture of the peoples of South-East Asia and China. Christianity and Islam spread among the peoples of Asia and Europe kindling latent fires and opening fresh chapters in the history of the world.

The religions of the world may be grouped into three broad classes. 1. Leading religions, 2. Lesser religions and 3. Primitive religions. The leading religions are Buddhism, Christianity, Confucianism, Hinduism and Islam. The lesser religions include Jainism and Sikhism of India, Judaism of Palestine, Shintoism of Japan, Taoism of China and Zoroastrianism originally of Persia. The primitive religions count by the thousand. They are all very small communities, each with a handful of votaries. They are principally found among the aboriginal tribes of Australia, the Americas, India, Burma, South East Asia, Indonesia and Africa.

Buddhism was founded by Gautama Buddha who lived in the 6th century B.C.† Gautama, otherwise known as Siddhartha, was the son of an Indian prince, Suddhodana, chief of the Sakyas. Even as a child he was given to contemplation. The sorrows and sufferings of the world tormented his loving heart and he abandoned his princely home, his wife and child and started in pursuit of enlightenment at the age of 29. After years of wandering and contemplation Gautama at last found enlightenment while meditating under a great peepul tree. From that day, he came to be known as the *Buddha* or the Enlightened One.

The Buddha preached that emancipation from the cycle of rebirths, i.e., *Nirvana*, can be attained by a path of self-purification. He attached little importance to rituals and ceremonies in which the Brahmin priests indulged. He does not appear to have even envisaged the existence of a Supreme God. He preached in the vernacular of the people, a simple doctrine of love and mercy which appealed to all.

Buddhism is essentially a religion of kindness, humanity and equality. It denounces all claims to superiority on grounds of birth or caste. The eminence or lowness of men is determined by their own conduct and actions.

Two or three centuries after the death of the Buddha, we find the Buddhist religion divided into two broad schools, the *Hinayana* and the *Mahayana*. The Hinayana school prided itself on maintaining the teachings of the Buddha in their original form. The Mahayana school converted the human Buddha—*Sakya muni*—into an eternal and supreme deity, presiding over the world and succouring his devotees.

Mahayana Buddhism is prevalent in China, Tibet, Korea and Mongolia. Hinayana Buddhism is prevalent in Burma, Sri Lanka, Kampuchea and Vietnam.

The most sacred places of Buddhism are Lumbini in Nepal, where the Buddha was born, the Bodh Gaya (Bihar), where he received enlightenment and Kusinagara (UP), where he attained *nirvana*.

Christianity founded by Jesus Christ now commands the largest following in the world. Christ was born in B.C. 4 in Judea.* He started preaching about the Kingdom of God when he was thirty. His activities roused the opposition of the Jewish highpriests who accused him of blasphemy.

He was cruicified under the orders of Pontius Pilate, the Roman Governor. After three days, Christ was resurrected from the dead. With the Resurrection of Christ, his disciples took heart and went about preaching the Kingdom of God to all the peoples of the world.

Christianity spread throughout the Roman Empire where it was made the state religion in the 4th century A.D. Later, the Church split into two broad groups—the Western Church under the Pope in Rome, and the Eastern

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† The actual dates of Buddha's birth and death are disputed.

* The date is disputed. See Chapter 'Outline of History' in part one

Churches under the Patriarchates of Antioch, Alexandria and Constantinople. Still later, further disruptions took place. The Roman Church was broken up by Protestantism, while in the Eastern Churches, many communities like the Armenians, Ethiopians, Russians and Indians set up their own Patriarchates.

Jerusalem, where Christ lived and preached, is the most sacred place for Christians all over the world.

Confucianism: Kung Fu Tsu, better known as Confucius, was born in 551 B.C. in China. Even as a young man, he had an ardent thirst for knowledge. When still in his youth, he met and talked with Lao-tse who was then a famous figure. Struggling through poverty, Confucius first became a minor civil servant and later rose to be the magistrate of a state. His brilliant administration evoked the jealousy of others, who conspired to bring about his dismissal in 496 B.C. Thereafter he wandered about penniless and homeles, until in 478 B.C. he died, aged seventythree.

After his death, his sayings were collected in the *analects* and he was honoured throughout China, as a deity ranking with the deities of Heaven and Earth. Confucius was a moralist rather than the founder of a religion. He conserved, systematised and taught the age-old teachings of China. He advocated regularity in life, temperance in food and drink and emphasised the importance of learning, loyalty and truthfulness. He formulated a golden rule of reciprocity, "what you do not want done to yourself, do not do to others"—just a step short of the Laotsean and Christian doctrine of returning good for evil.

Peking is the city sacred to the adherents of both Taoism and Confucianism.

Hinduism: The word *Hindu* originally was the Persian rendering of the Indian word *Sindhu*—the Sanskrit name of the river Indus. The Persian name *Hindu* must have come into being in the 6th century B.C. when the territory round Indus formed part of the Persian Empire. But the name disappeared from India, with the exit of the Persians. It came back to India, centuries later, with the Muslim invasions from the north-west.

At that time, however, the word *Hindu* simply meant *Indian* and had no religious connotation. Subsequently, under the Mughal emperors, the word assumed a religious tint and under the British it came to be applied exclusively to the people, who followed the age-old religion of India.

The basis of Hinduism lies in the four *Vedas* of the Aryans. The word *veda* is derived from *vid,* to know. The vedas are known as *sruti,* or that which is heard or revealed. The orthodox Hindus think that the vedas are *anadi,* without a begining. Others believe that the vedas were revealed to ancient *rishis* (sages).

The *Rigveda* is the earliest and the most important of the four vedas. It is the oldest scripture in the world having been composed in the third millennium B.C. It consists of over 1000 hymns, a heterogeneous collection of prayers to gods like *Agni, Vayu, Varuna, Indra, Mitra, Soma, Ushus* and others, instructions on rituals, incantations, songs, and verses on nature. The other three vedas are more specialised. The *Yajur Veda* deals mainly with sacrificial invocations, the *Sama Veda* contains melodic invocations and the *Atharva Veda* deals with medicines and magical incantations.

Each Veda is divided into *mantras* (hymns), *Brahmanas* which explain the mantras and rituals, *Aranyakas,* mystic teachings meant for meditation in forests and *Upanishads,* speculations on Being and Reality.

The early Aryan gods were deifications of natural forces, Agni, Varuna, Soma, Surya etc. They were worshipped with sacrifice. There were no temples or images. The sacrifices were performed on open altars, where a wood fire was lighted, and offerings of food and drink, in the shape of meat, fat, butter, milk, cakes of barley and the spirituous drink *soma,* were offered to the gods, who were supposed to dwell in the sky. This was the vedic rite of *homa,* the quintessence of vedic religion.

When the Aryans came to India, they encountered a highly civilized people—the Dravidians—the builders of the City Civilization of the Indus Valley. They defeated the Dravidians and probably enslaved them. But though superior in war, the Aryans were far behind the Dravidians in culture. Before long they succumbed to the superior culture of the pre-Aryans and adopted it. *Graecia capta ferum victorem cepit** (Enslaved Greece made a slave of her rough conqueror).

The mainstay of popular Hinduism is the later vedic literature which consists of the

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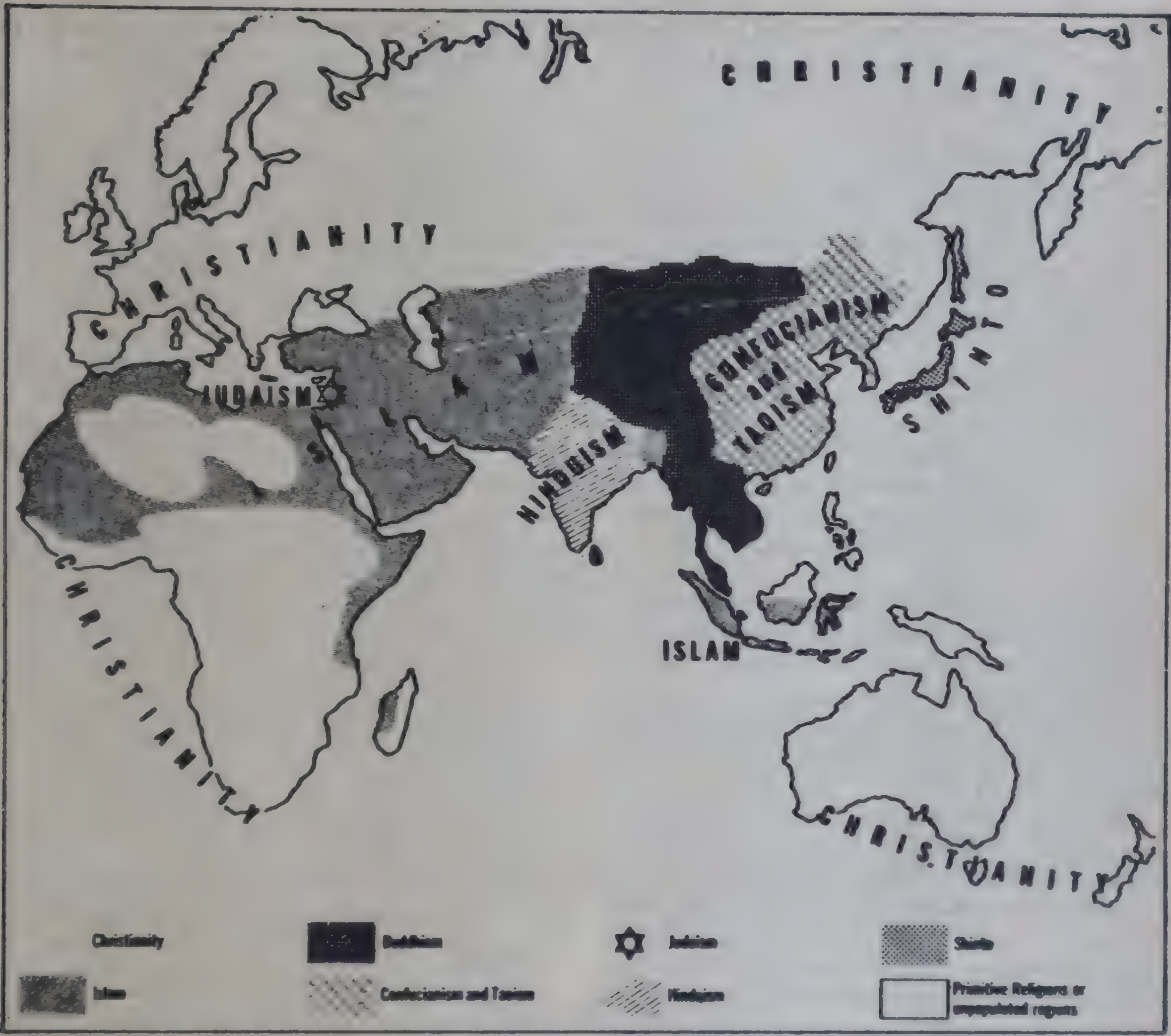
* Horace


CHRISTIANITY
CHRISTIANITY
JUDAISM
ISLAM
HINDUISM
CONFUCIANISM and TAOISM
SHINTO
ISLAM
CHRISTIANITY
CHRISTIANITY
Christianity
Buddhism
Judaism
Shinto
Islam
Confucianism and Taoism
Hinduism
Primitive Religions or unpopulated regions

Major World Religions: The map given a general idea of the areas where the world's major religions have exerted their strongest direct influence. Not shown are North and South America where Christianity has been predominating.

puranas (old stories) and *itihasas* (epics). There are 18 puranas: *Matsya, Markandeya, Bhagavata, Bhavishya, Brahma, Brahmanda, Brahmavaivarta, Vayu, Vishnu, Varaha, Vamana, Agni, Naradiya, Padma, Linga, Garuda, Kurma* and *Skanda*. There are also a number of *upa puranas* or minor puranas. Some puranas are believed to date back to the pre-Christian era. But many are believed to have been written between the third and the seventh centuries A.D.

The *Itihasas* or epics are two—the *Ramayana* by Valmiki and the *Mahabharata* by Vyasa. Both these great works drew their inspiration from pre-Aryan folk-lore. The story of Rama or *Ramayana* looks like a blend of three distinct stories of pre-Aryan origin, put together at different times and finally embellished as a national poem of epic dimensions. The *Mahabharata*, on the other hand, embodies the legends of the Aryans and the non-Aryans and was created consciously as the national poem of a new Hindu nation of mixed origin welded into one people under Brahmana guidance.-

The popular gods of the early Aryans, Indra, Varuna, Agni, Soma, Surya and others yielded place in course of time to a group of more powerful and more personal gods, more profound and cosmic and more philosophical in conception—namely the puranic gods of

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- S.K. Chatterjee—*Vedic Age, Bharat Vidya Bhavan*

Hinduism headed by *Siva-Uma* and *Sri-Vishnu*. *Siva* and *Uma* are clearly pre-Aryan gods. *Vishnu* was partly Aryan—a form of Sun god—and partly Dravidian—the blue sky-god—*Sri* was an Aryan goddess to start with, the Indian counterpart of the European *Ceres*, but in her association with Vishnu as *Gajalakshmi*, she is indigenous and pre-Aryan.

The outstanding instance of the Dravidisation of the Aryan religion is found in the preponderant place given to the *puja* form of worship compared to Aryan *homa*. Puja rite, which involves the offering of flowers, fruits, leaves, water etc. to an image or symbol of divinity, is characteristically Dravidian. This is now the everyday form of worship for all Hindus—the homa being kept up artificially among limited groups of Brahmins or Kshatriyas.

The imprimatur or theological sanction for puja is found in the *Bhagavad Gita*** which is the bedrock of modern Hinduism.

"If any offers me with devotion, a leaf, a flower, a fruit or water, I receive that offered in devotion by the person whose soul is disciplined". Gita IX, 26.

Hinduism emerged as the national religion by a brilliant synthesis of Aryan and non-Aryan ideas. This ability to adopt or adjust to alien ideas has made Hinduism a highly receptive and tolerant religion. It is this receptivity that has helped it to survive the onslaughts of other religions and influences through centuries.

When Buddhism rose as a challenge to orthodox Hinduism, Hinduism reacted by sanctifying the Buddha as an *avatar* of Vishnu. Similarly, the Jain idea of non-violence or non-injury to living things appealed to many people as a gospel of mercy, good will and fellowship with all living creatures. Hinduism took over the idea and worked it out as the doctrine of *Ahimsa*, which was elevated as the highest of all *dharmas*.

In spite of its great adaptability and accommodation, Hinduism has been rocked by dissensions and disputations. The bitter struggle between *Vaishnavites* and *Saivaites*, between supporters of God Vishnu and God Siva, lasted for a long time. But this was rather a struggle for supremacy in the Hindu fold—never a segregation from it.

Like all old religions, the appeal of Hinduism has flagged and waned from time to time. And from time to time, reformers have sprung up, brilliant intellects and devout ascetics like *Sankaracharya* (8th century A.D.), *Ramanuja* (12th century) and *Madhwa* (13th century)—who have not merely restored popular faith but also countered heretical or fissiparous tendencies, by a re-interpretation of Hindu philosophy and reformation of Hindu practices, to meet the demands of the times.

Modern Hinduism may be dated from the days of *Sri Sankaracharya*, more than 1000 years ago. Sankara lived in the 8th century A.D. He was born at Kaladi in Kerala of a Namboodiri Brahmin family. He is by far the greatest of Hindu reformers. Before he died at the early age of 32, he travelled through India thrice, debating with scholars and expounding his theory of *Advaita* or monism. He was not only a great thinker but also a great organiser.

Among the most durable monuments to his organising zeal are the famous monasteries of Sringeri in Karnataka, Dwaraka in Gujarat, Puri in Orissa and Badrinath on the snowy heights of the Himalayas. He purged Hinduism of many evil cults and practices. Thus, the worship of the Mother Goddess, who was called by many names—*Devi, Durga, Kali, Lakshmi, Parvati, Amba, Amman*, etc—had degenerated into licentiousness.

Devi worship, in the past was part of the *Sakta* cult with its five Makaras, *matsya* (fish), *mamsa* (meat), *madya* (liquor), *mudra* (dance), and *maithuna* (copulation). Sankara reformed this cult and restored it to its original purity. Similarly he is said to have put down the *Kapalikas*, who indulged in human sacrifices to appease God Bhairava. Sankara thus rejuvenated Hinduism and gave it a new philosophy and a new look.

Ramanuja, the next great reformer lived in the 12th century A.D. He was born in Sriperumbadur in Tamil Nadu. He modified Sankara's philosophy of Advaita and preached a new philosophy *Visishtadvaita* or qualified monism. Ramanuja laid great emphasis on *bhaktimarga* or deliverance by way of devotion to a compassionate god, in contrast to *Karmamarga* or the way of deliverance by the performance of vedic rites.

Madhwa, born in 1238, near Udipi in Karnataka is the third of the great reformers.

** Bhagavad Gita occurs in the Mahabharata.

He is the supreme exponent of *dvaita* or dualism. All these great reformers stressed the importance of *bhakti* or devotion to a personal god.

The renovation of Hinduism started by this great trio of the south, was continued by a number of saints and sages in the rest of India, Ramananda of Allahabad. Vallabhacharya of Benares, Namadeva of Maharashtra. (who unlike others came from a low caste), Mirabai of Rajasthan (a princess turned *sanyasin),* Ekanath, Tukaram and Ramdas, all from Maharashtra, Surdas, the blind poet of Agra, Lalla of Kashmir, Sant Kabir of Varanasi and others.

The greatest of the *bhakti* leaders and one of the greatest reformers of Hindu religion is Chaitanya (1485-1533), who hailed from a Brahmin family in Bengal. At the age of 24 he became a sanyasin and spent the rest of his life. preaching the bhakti movement all over North India.

Organised work for the re-vitalisation of Hinduism started with Swami Dayananda Saraswati (1824-1883). He founded the *Arya Samaj* and started the *Sudhi* (purification) movement, for the conversion of non-Hindus to Hinduism. He was a great Sanskrit scholar and admonished his followers to go back to the Vedas.

The next great reformer, in point of time, was *Ramakrishna Paramahamsa* (1836-1886). He was a poor priest in a temple of Calcutta, without any formal education, eastern or western.But he was a deeply religious man, who believed in the inherent truth of all religions. His catholicity, mysticism and spiritual fervour attracted a small band of devoted disciples. They formed a Mission, named after him, the Ramakrishna Mission.

The most famous leader of the Mission was Narendranath Datta, an English educated disciple of Paramahamsa. In later years, he became famous as *Swami Vivekananda* and carried the message of Hinduism to far off countries like USA. The Ramakrishna Mission stands for social and religious reform, based on the ancient culture of India.

Islam: In Arabic, Islam means submission, obedience or peace. It is meant as the obedience and submission to God to attain peace in the world. The believers of this universal religion are called Muslims. They belive in one and only God, His Angels, His Books as completed by the Quran as the word of God revealed to Prophet Muhammad through Angel Garbiel and His Messengers, with Muhammad being the last of them all.

Some call Islam *Mohammedanism* and address believers as *Mohammedans.* Muslims reject this as the misnomer will imply that the religion was founded by Muhammad, a mortal being. They believe that Muhammad was commissioned as prophet by God to teach the word of God.

The Muslims have to bear witness to the one-ness of God and the messengership of Muhammad; have to observe prayers five times daily with a weekly Juma prayer on Friday noons; have to pay a religious tax of 'Zakath' to the rightful beneficiaries, the minimum of which is two and a half per cent of the annual net income or of the total value of stock in business after discounting expenses and credits; have to keep the dawn-to-dusk fast, without food, drinks and smoking, in the ninth month of Ramzan of the Islamic Year. They have to make a pilgrimage to the annual congregation called *Haj* to Makkah (Mecca) in Saudi Arabia in the second week of the 12th month of Dul Haj. This pilgrimage once in a lifetime, to Kabah in Makkah is obligatory to the Muslims, male or female, who are financially, physically and mentally fit.

Every Muslim turns his face five times daily towards Kabah, the small cubical mosque in Makkah. They believe that it was the first mosque to be dedicated to the pure worship of the one and only God.

The Muslim Era began with the emigration of Muhammad from Makkah to Madina in 622 A.D. The Islamic Calendar is lunar, determined by the sight of the Moon. It is of 12 months, and each month is either thirty or twenty-nine days, depending upon the position of the Moon.

The two main festivals of the Muslims are *Idul Fiter* and *Idul Azha* publicised as 'Ramazan'. Idul Fiter is the feast of breaking the fast of Ramazan on the first day of the tenth month of Shavval. Idul Azha is the festival of sacrifice, mentioned otherwise as *'Bakrid'* in calendars. This falls two months after Ramazan, on the tenth day of the last month of Dul Haj, a day after the holy congregation of Haj at Makkah. Prophet's day or Miladunnabi (the birthday of Prophet Muhammad) and Muharram (the day of sacrifice of Imam Husain, grandson of Muhammad) are also celebrated by Muslims.

Islam had its influence in the three continents of Asia, Africa and Europe. It gave right of property to women 12 centuries before England adopted it in theory.

As per 1981 statistics, there are fifty-seven crore (570 million) Muslims in the world. Indonesia with 14 crore (140 million) tops the list. India has nine crore Muslims with Bangladesh 7.6, Pakistan 7.5, Nigeria 6.2, Russia 6, and China 5 crore.

Jainism derives its name from Jaina (the conqueror), the second name of Vardhamana Mahavira. Mahavira, like Buddha belonged to a princely family in Vaisali. At the age of 30, Mahavira, renounced the world and spent 12 years in austerity and meditation in search of truth. At last, at the age of 42, while meditating under an Asoka tree, he received enlightenment. He was thereafter known as Jaina, the Conqueror.

According to Jain legends, Mahavira was born at the beginning of the sixth century B.C.* The actual dates of his birth and death are hotly disputed.

Jainism preaches that by following the threefold path, all souls will be released from the cycle of births and deaths and will reach the pure and blissful abode above (Sidha Sila). The threefold path consists of three jewels (triratna), right belief, right cognition and right conduct.

After A.D. 82 Janinism split into two groups, the Digambaras and the Svetambaras. The Digambaras wore no clothes, while the Svetambaras wore white clothes. Both groups believed in overcoming the senses by meditation and penance.

The Jains have many places of pilgrimage in Indiia. The most important of them are the mountain of Samata, near Parsanath in Bihar, where Parsua is said to have attained nirvana; Papapuri or Pavapuri where Mahavira died; Mount Abu in Rajasthan and Shravenbelgol in Karnataka, where the temples of Tirthankara, Adinath and Bahubali are situated, and the high monolithic statue of Gomateshwar, son of Rishabha, stands.

Judaism, the religion of the Hebrews was in existence long before its first prophet and lawgiver Moses came on the scene. The first historical figure among the Hebrews is Abraham, who left Ur in Chaldaea with the Hebrew tribe, about 2000 B.C. After a long period of wandering in the Arabian desert, the Hebrews at last settled in Egypt. However, they were enslaved by the mighty Pharaohs.

It was left to Moses to liberate the Hebrews from Egyptian bondage and to lead them to a land of milk and honey promised them by God. On the way, at Mount Sinai, Moses received the 'Ten Commandments' from 'Yahweh' or Jehovah, the Supreme God. By the time the Hebrews had settled in the Promised Land, the first five books of Moses had been written.

The Hebrews organised themselves into the Kingdom of Israel round about 1000 B.C. In 586 B.C. Nebuchadnessar conquered Israel and carried off the Hebrews into the Babylonian Captivity. With the conquest of Palestine by Cyrus, the Hebrews were resettled in Israel. It was during this period that the writings of the Prophets and the Psalms were codified.

The Law, the Prophets and the Psalms remained as separate holy books until the time of Christ, when they were put together as the Hebrew Bible or the Old Testament. The Talmud, which is a collection of detailed laws for the guidance of civil, domestic and social life, was completed during the 4th and 5th centuries A.D.

Judaism is a simple religion which aims at a moral life. To the Jews, right conduct is more important than right belief. According to the Talmud every good man is assured of heaven, the gentile who observes the moral law being the equal of the High Priest. Judaism is free from sentimentalism and is averse to self-imposed suffering, idleness and asceticism. Jerusalem is the Holy City of the Jews.

Shintoism: Shinto is a Japanese ethnic religion. The word "Shinto" means "the way of the spirits", the underlying principle being ancestor worship. It must have evolved gradually, accumulating fresh material as ages passed without any religious reformer directing it or altering it. It has no sacred books or moral code.

Shinto is the religion of the followers of Mikado, the Japanese Emperor.

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* "The 2500th Nirvana Anniversary of Mahavira was celebrated as a national festival for one year commencing on 13th November, 1974"

The Mikado is, in fact, the focal point of the religion, the only God that it knows. There are, however, innumerable deities. Except for certain rituals developed through the ages, Shinto has no religious content or appeal.

Shinto declined rapidly after the Japanese emperor surrendered his claim to divinity in 1947.

The central shrine of Shintoism is at Ise, in Central Japan, to which all devout Japanese make pilgrimages. Shintos are found almost exclusively in Japan.

Sikhism: The Sikh religion was founded by Guru Nanak who lived in the Punjab between A.D. 1469 and 1538. He was very much troubled at the frequent quarrels between Hindus and Muslims. He preached that there was only one God for Hindus and Muslims and tried to work out a synthesis of the two religions. His mission became popular and he very soon had a large following. He travelled extensively, going as far as Makkah and was in frequent contact with the leading sages of Hindu and Muslim religions. On his death, he was succeeded by his disciples who became Gurus in their turn.

The Gurus have built up the modern Sikh community. The fifth guru, Guru Arjan Mahal (1581-1606) compiled the *Adi Granth,* the first sacred book of the Sikhs. The most famous Guru is Guru Govind Singh (d.1708). He organised the Sikhs into a militant community. He instituted *Pahul* or baptism in water stirred by a dagger.

Those who were baptised were known as the *Khalsa* (pure) with the designation *Singh* (lion). All members of the Khalsa had to wear the 5 k's—*Kes* (long hair), *Kangha* (comb), *Kripan* (sword), *Kachcha* (short drawers) and *Kara* (steel bracelet). The Khalsa soon emerged as a valorous fighting unit. It enabled the Sikhs to form a state of their own under Maharaj Ranjit Singh.

The growth of the British power in India reduced the Sikhs to submission. But they continued to be fighters and soon came to be described as the fighting arm of the British. The majority of the Sikh population is found in the Punjab and the city of Delhi. Their most important sacred place is the Golden Temple at Amritsar.

Taoism: Lao-tse, the founder of Taoism, was born in China about the sixth century B.C. Lao-tse put down his teachings in a book called Tao-Teh-King, which became the Taoist Bible. "Tao" originally meant "road" or way, but later came to signify the perfect reality. Taoism preached goodness, simplicity, purity and gentleness in everyday life. The three jewels of Taoism are compassion, moderation and humility. Lao-tse taught what Christ later preached, the return of good for evil. "When you are reviled, cherish no resentment, be kind and generous without seeking any return".

Religious Membership

Total Christians	:	1,056,692,845
Roman Catholic	:	621,639,320
Eastern Orthodox	:	65,645,210
Protestant	:	369,408,315
Jews	:	17,320,140
Muslims	:	555,277,180
Zoroastrians	:	245,620
Shintos	:	33,050,000
Taoists	:	20,563,475
Confucians	:	163,130,115
Buddhists	:	250,951,580
Hindus	:	462,589,910
Total Membership	:	2,559,820,000
Total population	:	4,721,886,000

(Source: Britannica Book of the Year, 1984)

Lao-tse's philosophy, highbrow as it was, failed to evoke response in the common man. The disciples of Lao-tse used "Tao-Teh-King" as a source book for magic and Taoism degenerated into mere ritual. By the middle of the second century B.C. Taoism had debased itself so far as to deify Lao-tse, who was worshipped with sacrifice.

Zoroastrianism: Zarathushtra or Zoroaster, the founder of Zoroastrianism, was born in Medea (modern Iran) about 660 B.C. He thought that life was a struggle between the forces of good and evil. The spirit of good was Ahura Mazda with its helper mithras, the Light. The evil spirit was Angra Mainyu or Ahriman, the Lie Demon. Man could not be neutral in the struggle. He had to fight for right and live a righteous life. Those who lived righteously went to paradise which was a state of immortal holiness in thought, word and deed. The impious were condemned to an eternal hell of evil thoughts and deeds and physical torment. By 500 B.C. Zoroastrianism had become the leading faith in Persia and Medea.

The sayings of Zoroaster were gathered into a book, called Avesta or Zend Avesta, which became the Bible of the Persians.

The Zoroastrians who fled to India during the 8th century, are the ancestors of the present Parsi community in India.

CLASSICAL WRITERS

'The Classics' originally meant literature or art of ancient Greece and Rome. With the passage of time it acquired the broader sense of any literary or artistic work of the highest order, enduring interests, quality or style.

The following is a list of classical writers in *Sanskrit*, *Greek* and *Latin* with their important works, in alphabetical order.

Aeschylus (526–456 B.C.) Athenian dramatist. *Prometheus Unbound, The Persians, The Seven against Thebes, Oresteia,* etc.

Aesop (c. 620–560 BC) Greek fabulist. *Aesop's Fables.*

Amaruka (7th century AD) Sanskrit poet. *Amaruka Sataka* (100 stanzas of Amaruka).

Anacreon (c. 6th century B.C.) Famous Greek lyric poet.

Aquinas, St. Thomas (c. 1225–1274) Italian philosopher and theologian. *Summa Theologica, Summa Contra Gentiles.*

Aristophanes (c. 444–c. 385 B.C.) Athenian satirist and comic poet. *Lysistratea, Birds, Peace, Acharnians* etc.

Most Translated

The works of Vladimir I Lenin, leader of the Bolshevik Revolution in the Soviet Union, have been translated more times than that of any other writer according to L' Index Translationum *published by the UNESCO.*

Lenin's works have been translated 370 times exceeding the 202 translations of the Bible. In the second and third places are works by British detective novel writer Agatha Christie, which have been translated 216 times, and Walt Disney books, written by numerous authors, which are credited with 203 translations.

Among the most translated authors are William Shakespeare (78 translations), Leo Tolstoy (78), Fyodor M. Dostoyevsky (61) Charles Dickens (60) and Maxim Gorky (50).

Aristotle (384–322 B.C.) Greek Philosopher. *Rhetorics, Politics, Natural History, Poetics.*

Asvagosha (A.D. 1st cent.) Sanskrit poet. *Buddhacharita* (Story of Buddha).

Bana (A.D. 7th cent.) Sanskrit prose writer. *Harshacharita* (Story of Harsha), *Kadamabari*, a romantic story.

Bhadrabahu (4th cent. B.C.) *Kalpasutra* (a manual on ceremonies).

Bharavi (A.D. 6th cent.) Sanskrit poet, *Kirathatjuneeya* (Arjuna and Kiratha).

Bhatti (A.D. 7th cent.) Sanskrit poet. *Bhattikavya* (Bhatti's poem), a story of Rama. (100 Stanzas on morals).

Bhartruhari (A.D. 7th cent.) Sanskrit poet. *Nitishataka Shrinyaran Shataka* (100 stanzas on love), *Bhaktishataka* (100 stanzas on piety).

Bhasa (A.D. 5th cent.) A prolific Sanskrit writer. Wrote 13 plays. *Swapna Vasavadatta* (Vasavadatta's Vision), *Pratijna Yaugandharayana* (Vow of Yaugandharaya), *Charudatta.*

Bhavabhuti (A.D. 8th cent.) Sanskrit dramatist. *Malathimadhava* (story of Malathi and Madhava), *Mahavieracharita* (Story of the Great Hero), *Uttararamacharita* (Later deeds of Rama).

Bilhana (A.D. 12th cent.) Sanskrit poet. *Vikramankadevacharita* (Story of Vikramanka—Chalukyan emperor), *Chaurapanchasika* (Fifty stanzas on the thief).

Dandin (7th cent. A.D.) Sanskrit prose writer. *Dasakumara Charita* (Tales of the Ten Princes).

Diogenes (412–323 B.C.). Greek philosopher, founder of Cynic philosophy.

Epicurus* (342–270 B.C) Greek philosopher, founder of the Epicurean School.

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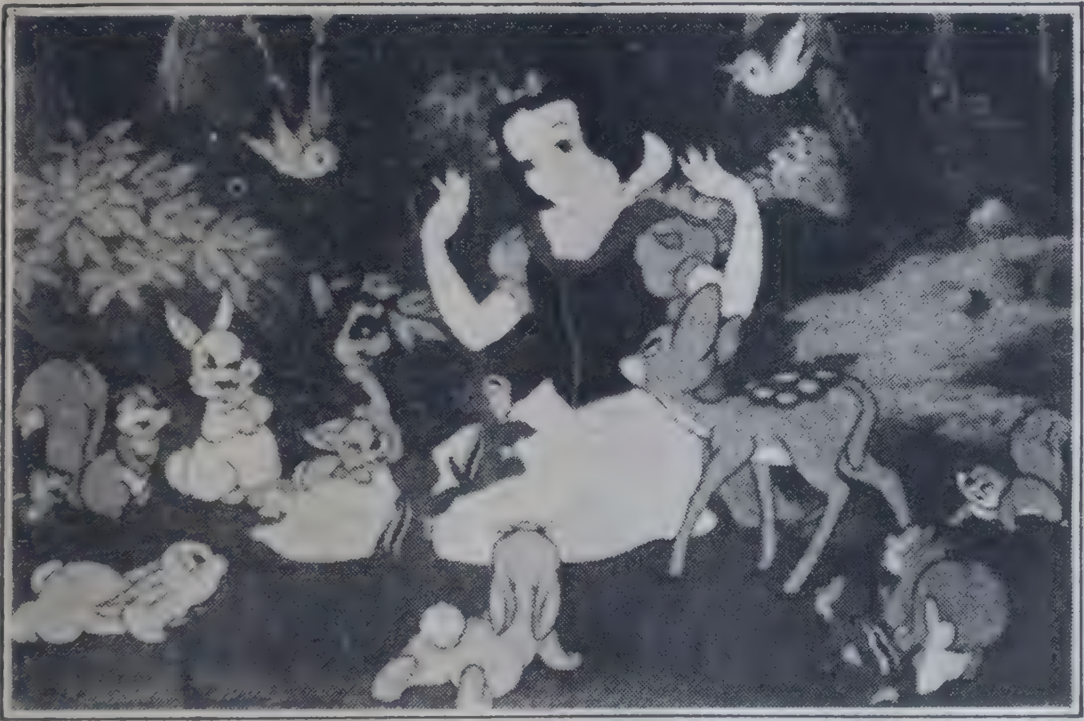
* Epicurean, today means one who has fine tastes in eating and drinking. This is unfortunate, for Epicurus was a confirmed ascetic, who advocated intellectual pleasures and not the appeasement of physical appetites.

Snowwhite is Fifty



Before Steven Spielberg and George Lucas, before "The Wizard of Oz," before all other animated cartoon features, there was Walt Disney's "Snow White and the Seven Dwarfs."

It opened again in New York and 60 countries around the globe including the Soviet Union and the People's Republic of China on Friday July 17, 1987. The return of this 50-year-old film for its seventh and "Golden Anniversary" reissue prompts a consideration of the revolutionary effect that "Snow White and the Seven Dwarfs" had in its first release — on the film industry, on the moviegoing public all over the world and on some of the greatest artists of the 20th century.

In 1934, when Disney announced his intention of making the first feature-length animated cartoon — perhaps costing as much as $ 250,000 — well-wishers told him he was crazy.

Disney, who always said that self-confidence was the most important element of success, listened politely and made the feature anyway — at a final cost of $ 1.15 million in mostly borrowed dollars. "Snow White and the Seven Dwarfs" had its premiere in Hollywood on Dec. 21, 1937, and grossed $ 8 million in its first release — at that time, the most money a film had ever made. It played in 41 countries and soon had sound tracks in 10 different languages.

By 1987, it has grossed about $ 3.30 million worldwide — so it remains one of the most popular films ever made. People from Brooklyn to Bangkok can still recite the names of the seven dwarfs in the Disney version (they didn't have names in the original fairy tale as written down in the last century by the Brothers Grimm)

(Excerpted from in The York Times.)

Letters to Herodotus, Menocecus and others, De rerum natura.

Euripides (480–406 B.C) Greek dramatist. *Alcestis, Bacchae.*

Gunadhya (1st cent. A.D.) Sanskrit writer. *Brahat Katha* (the great story), a collection of many stories.

Hala (Satavahana King) (1st cent. A.D.) Sanskrit poet. *Saptasati* (Seven Hundred Verses).

Centenary of Sherlock Holmes

Britain celebrated 1987 as a year of worldwide tributes to Sherlock Holmes, history's greatest fictional detective, who made his debut in print 100 years ago.

The thin man with a sharp nose and curved pipe who still receives an average of 40 letters a week asking for help in solving crimes has been entertaining detective story readers since 1887.

"He is still incredibly popular", said Capt. William Michell, secretary of the 800 strong Sherlock Holmes Society in Britain.

The ace detective, along with his bumbling friend Dr. Watson, figured in four of Conan Doyle's novels and 56 short stories: but such was his universal popularity that he inspired over 40 stage-plays and 200 TV and film versions of his exploits. This is perhaps the first time that a literary character's centenary is being celebrated.

Conan Doyle's only surviving daughter, Dame Jean Conan Doyle attended a special Westminster banquet on January 6 where 180 members of the Sherlock Holmes Society were also present. Celebrations were held in New York, Adelaide in Australia, Tokyo in Japan and Meningen in Switzerland.

The last-mentioned will ring a bell for Sherlock Holmes' buffs, because it was down a water-fall known as Richenbach that the detective's arch enemy Prof. Moriarty threw Sherlock Holmes in a scuffle. But readers would have none of it — and three years later, Conan Doyle was forced to revive his popular character for which he was paid a lot of money. Curiously The Tangled Skein, *the first Sherlock Holmes story, later re-issued at* Study In Scarlet, *brought Conan Doyle only 25 pounds as advance royalty in January 1887.*

Herodotus (c. 485–425 B.C.) Greek historian. *History of the Persian Invasion of Greece.*

Homer (c. 700 B.C.) Greek epic poet. *Illiad, Odyssey.*

Horace (65–8 B.C.) Latin poet. *Satires, Epodes, Odes.*

Jayadeva (12th cent. A.D.) Sanskrit poet. *Gita Govinda* (Song of Govinda).

Jimutavahana (12th cent. A.D.) *Dayabhaga,* a treatise relating to Hindu inheritance—part of a great compilation, *Dharma Sutra.*

Juvenal (Decimus Junius Juvenalis) (60–140), Latin poet. *Satires.*

Kalhana (12th cent. A.D.) Sanskrit writer. *Rajatharangini* (River of Kings—a story of the kings of Kashmir).

Kalidasa (5th cent. A.D.) The greatest Sanskrit poet. Plays: *Malavikagnimitra* (Malavika and Agnimitra—a comedy of harem intrigue), *Vikramorvasiyam* (Urvasi won by valour), *Abhijnana Sakunthalam* (Recognition of Sakunthala). Epics: *Raghu Vamsa* (Dynasty of Raghu), *Kumara Sambhavaom* (Birth of the War god). Lyrics: *Meghdoot* (Cloud Messenger), *Ritu Samhara* (Garland of Seasons).

Kautilya (Chanakya) (4th cent. B.C.) was the Chief Minister of Chandragupta Maurya. A well-seasoned politician, he practised Machiavellian tactics many centuries before Machiavelli. The only work attributed to him is *Artha Sastra* (Science of Statecraft).

Kumaradasa (6th cent. A.D.) Sanskrit poet. *Janakiharana* (Abduction of Janaki).

Magha (7th cent. A.D.) Sanskrit poet. *Sisupala Vadhom* (Slaying of Sisupala).

Mahendra Vikraman (a Pallava King) Sanskrit poet. *Matta Vilasa* (Sport of Drunkard).

Manu (2000 B.C.) (legendary author) Sanskrit law-giver. *Manu Smrithi* (The Code of Manu).

Narayana (12th cent. A.D.) Sanskrit story teller. *Hitopadesa* (Salutary Advice)—selected stories from *Panchathanthra.*

Naya Chandra Suri (14th cent.) Sanskrit poet. *Hammira Mahakavya* (Epic of Hammira).

Ovid (Publius Ovidius Naso) (43 B.C.−16 A.D.) Latin poet. *Tristia, Amores, Persephone Rapta.*

Panini (4th cent. B.C.) Sanskrit grammarian. *Ashtadhyayi* (Book of Eight Chapters).

Patanjali (2nd cent. B.C.) Sanskrit grammarian. *Mahabhashyam* (Commentary on Panini).

Plato (427−347 B.C.) Greek philosopher. *The Republic, Apology of Socrates, Phaedo, Laws.*

Pliny the Elder (23−79 A.D.) Latin philosopher. His *Natural History* is an encyclopaedia of all scientific knowledge available at the time.

Plutarch (c. A.D. 46−120) Latin biographer, *Lives.*

Rajasekhara (10th cent. A.D.) *Sanskrit. Karpoora Manjari,* a romantic drama.

Sandhyakara (12th cent. A.D.) Sanskrit poet. *Rama Charitha* (Story of Rama).

Sappho of Lesbos (early 6th cent. B.C.) Greek poetess of romance and amour. *Unrequited Love.*

Seneca, Lucius Annaeus (c. B.C.−56 A.D.). Stoic philosopher, tutor of Nero. Sentenced to end his own life, he killed himself courageously.

Somadeva (11th cent. A.D.) Sanskirt poet. *Katha Sarit Sagara* (Ocean of Story)—collection of stories.

Sophocles (495—406 B.C.) Greek dramatist. *Antigone, Oedipus the King, Oedipus at Colonus.*

Subandhu (7th cent. A.D.) Sanskrit poet. *Vasavadatta.*

Sudraka (5th cent. A.D.) Sanskrit dramatist. *Mrichhakatika* (Clay cart).

Tacitus, Caius Cornelius (55 c.−120) Latin historian. *Germania, Annals, Histories.*

Thucydides (c. 460−399 B.C.) Greek historian of the *Peloponnesian War.*

Vakpati (8th cent. A.D.) Sanskrit poet. *Ganda Vadha* (Slaying of Ganda) describes the exploits of Yasovarma, King of Kanyakubja.

Valmiki (6th cent. B.C.) Sanskrit epic poet. *Ramayana.*

Vatsyayana (5th cent. A.D.) Sanskrit writer. *Kama Sutra* (Art of Sex).

Vidyapathi (Legendary author) Sanskrit prose writer. *Pancha Tantra* (Five Treatises)—a collection of tales.

Vijneswara (11th cent. A.D.) Sanskrit writer. *Mitakshara,* a treatise on the law of Hindu inheritance.

Virgil (Publius Vergilius Maro) (70−19 B.C.) Latin epic pet. *Aeneid, Georgics.*

Visakhadatta (6th cent. A.D.) Sanskrit dramatist. *Mudra Rakshasa* (Minister's Signet Ring), *Devi Chandragupta* (The Queen and Chandragupta)—political dramas.

Vyasa, (6th cent. B.C.) Sanskrit epic poet. *Mahabharata,* considered the logest epic in the world. It has nearly 100,000 stanzas.

Xenophon (444−359 B.C.) Greek soldier, historian and author. *Anabasis* (The Retreat of the Ten Thousand).

Zeno of Citium (c. 340−264 B.C.) Greek philosopher, founder of the Stoic school. Zeno taught in *Stoa Poikile* of Athens, hence *Stoic.*

WELL KNOWN BOOKS

The following is a list of some notable works and their authors:

A China Passage: *John Kenneth Galbraith*
A Critique of Pure Reason: *Immanuel Kant*
A Dangerous Place: *Daniel Patrick Moynihan*
A Doll's House: *Ibsen*
Adonis: *P.B. Shelley*
A Farewell to Arms: *Ernest Hemingway*
A Guide for the Perplexed: *E.F. Schumacher*
A Judge's Miscellany: *M. Hidayatullah*
A Midsummer Night's Dream: *William Shakespeare*
A Passage to England: *Nirad C. Chaudhury*
A Passage to India: *E.M. Forster*
A Personal Adventure: *Theodore H. White*
A Prisoner's Scrapbook: *L.K. Advani*
A Sense of Time: *H.S. Vatsyayan*
A Spaniard in the Works: *John Lennon*
A Tale of Two Cities: *Charles Dickens*
A Thousand Days: *Arthur M. Schlesinger*
A View from Delhi: *Chester Bowles*
A Village by the Sea: *Anita Desai*
A Voice for Freedom: *Nayantara Sahgal*
A Week with Gandhi: *Louis Fischer*
A Woman's Life: *Guy de Maupassant*
Adam Bede: *George Eliot*

Shakespeare in China

Othello's entry is heralded by four clowns who leap onto the stage doing somersaults to the beating of drums in the background.

Iago woos Desdemona using acrobatic techniques of the opera.

In The Merchant of Venice, *Shylock's religious background is deleted along with the conflicts between different nationalities.*

This is the presentation of Shakespeare's plays — Chinese style.

China, which held its first Shakespeare festival in April, 1986 staged 16 of the dramatist's 37 plays with their structure altered to suit local tastes.

The colourful blending of east and west can be seen in the staging of Shakespeare's productions as Chinese theatrical techniques are used to meet the tastes of the Chinese audience, says a Chinese news magazine.

The Chinese touch is most discernible in the fact that the structure of Shakespeare's play, usually a labyrinth of plots and sub-plots, is changed to tell a single story in chronological order.

However, not all of Shakespeare's plays are adopted into local Chinese operas. The Merchant of Venice *was changed into a romantic comedy which opens with young men and women boating and singing on a rippling lake. The movement of the boat is illustrated by the actors and actresses paddling their feet.*

In the staging of A Winter's Tale, the curtains went up as an actor dressed as Shakespeare appeared on the stage and said: "Real art transcends national boundaries and can arouse sympathy in every human heart... I belong not only to the British people but also to you, my Chinese friends. I would like my works to be flowers in the splendid garden of Chinese opera".

Adhe Adhure: *Mohan Rakesh*
Adventures of Tom Sawyer, Adventures of Huckleberry Finn: *Mark Twain (Samuel Langhorne Clemens)*
Adventures of Sherlock Holmes: *Arthur Conan Doyle*
Advise and Consent: *Allen Drury*
Affluent Society: *John Kenneth Galbraith*
Age of Reason: *Jean Paul Sartre*
Agni Veena: *Kazi Nazrul Islam*
Agony and the Ecstasy: *Irving Stone*
Airport: *Arthur Hailey*
Akbarnama: *Abul Fazal*
Alice in Wonderland: *Lewis Carroll*
All's Well that Ends Well: *William Shakespeare*
All Quiet on the Western Front: *Erick Maria Remarque*
All the President's Men: *Carl Bernstein & Bob Woodward*
All the Prime Minister's Men: *Janardan Thakur*
All Things Bright and Beautiful: *James Herriot*
Amar Kosh: *Amar Singh*
An American Tragedy: *Theodore Dreiser*
An Autobiography: *Jawaharlal Nehru*
An Eye to China: *David Selbourne*
An Idealist View of Life: *Dr. S. Radhakrishnan*
An Unknown Indian: *Nirad C. Choudhury*
Anandmath: *Bankim Chandra Chatterjee*
And Quiet Flows the Don: *Mikhail Sholokhov*
Androcles and the Lion: *George Bernard Shaw*
Animal Farm: *George Orwell*
Anna Karenina: *Leo Tolstoy*
Answer to History: *Mohammad Reza Pahlavi*
Antony and Cleopatra: *William Shakespeare*
Ape and Essence: *Aldous Huxley*
Apple Cart: *George Bernard Shaw*
Area of Darkness: *V.S. Naipaul*
Arms and the Man: *George Bernard Shaw*
Around the World in Eighty Days: *Jules Verne*
Arrangement, The: *Elia Kazan*
Arrowsmith: *Sinclair Lewis*
As You Like It: *William Shakespeare*
Asia and Western Dominance: *K. M. Panikkar*
Asian Drama: *Gunnar Myrdal*
August 1914: *Alexander Solzhenitsyn*
Autobiography of an Unknown Indian: *Nirad C. Choudhury*
Autumn Leaves: *O. Pulla Reddi*

Babbit: *Sinclair Lewis*
Back to Methuselah: *George Bernard Shaw*
Bandicoot Run: *Manohar Malgonkar*
Bangladesh: The Unfinished Revolution: *Laurence Liftschultz*
Banyan Tree, The: *Hugh Tinker*
Beast and Man: *Murry Midgley*
Beginning of the Beginning: *Bhagwan Sri Rajneesh*
Ben Hur: *Lewis Wallace*
Bermuda Triangle: f26Berlitz
Best and the Brightest, The: *David Halberstam*
Beyond Modernisation, Beyond Self: *Sisirkumar Ghose*

Esperanto is 100

When 6,000 people from 60 countries gathered in Warsaw on July 26, 1987 to celebrate their movement's centenary year, they did not need any translators.

Instead, they all spoke the same language: Esperanto.

Esperanto is the international language invented by an idealistic young doctor, Ludwik L. Zamenhof, who published the first Esperanto handbook in Warsaw on July 26, 1887 with the hope that it would break down communication barriers between nations.

Since then, Esperantists have been ridiculed as cranks, persecuted by Nazis and Stalin and we have seen English emerge as the universal language in world commerce and other fields.

Still, the language has survived and even achieved a modest success. About 15 million people worldwide are believed to have some knowledge of the language.

On July 26, Esperantists the world over said "Gratulon pro la centa datreveno de Esperanto." Roughly translated: "Happy 100th birthday, Esperanto."

"That Esperanto has survived 100 years without the political and economic support of any government is a big success," said Simo Milojevic, the Yugoslav director-general of the UEA — Universal Esperanto Association.

Esperanto is a hotpotch of Latin (60 per cent) Greek, German and other languages. It has a phonetic spelling, each letter of the Roman alphabet stands for only one sound and grammar has been simplified to 10 basic rules and no irregularities. The only country where it is taught at college level is in some places in the U.S. and interestingly enough, China. Every year some 200 books are translated into Esperanto, and occasionally there is an original work such as a recent Esperanto play written by an Englishman, Mr. Harold Brown, and which was enacted by a Franco Bulgarian theatre group. However, computer technology might come to the rescue of Esperanto and give it a much needed fillip. It has been discovered that Esperanto is a very useful bridge in translating one language into another because it cuts out confusion between meaning and implication. This would facilitate high speed translations by computers. A Dutch computer company is now developing this software (using Esperanto) and plans to market it in 1989.

It is claimed that the universal language is taught in 625 schools throughout the world and there are some magazines and books which are published in Esperanto. European radio stations broadcast monthly programmes in the language. The play The Importance Of Being Earnest *is being staged in Esperanto in Britain, where the Liverpool university has a lecturership in the language. The University College, London, runs a degree course.*

Bharat Bharati: *Maithili Saran Gupta*
Big Fisherman, The: *Lloyd Douglas*
Biographia Literaria: *Samuel Taylor Coleridge*
Black Wednesday: *Promila Kalhan*
Blind Ambitions: *John Dean*
Blind Beauty: *Boris Pasternak*
Bliss was it in that Dawn: *Minoo Masani*
Bloodline: *Sidney Sheldon*
Born Free: *Joy Adamson*
Bread, Beauty and Revolution: *Khwaja Ahmad Abbas*
Breakthrough: *Gen. Moshe Dayan*
Bride's Book of Beauty, The: *Mulk Raj Anand*
Brothers Karamazov: *Feodor Dostoyevsky*
Bubble, The: *Mulk Raj Anand*
Butterfield 8: *John O' Hara*
By Love Possessed: *James Gould Cozzens*

Caeser and Cleopatra: *George Bernard Shaw*
Cancer Ward: *Alexander Solzhenitsyn*
Candida: *George Bernard Shaw*
Candide: *Voltaire*
Canterbury Tales: *Geoffrey Chaucer*
Cardinal, The: *Henry Morton Robinson*
Centennial: *James A. Michener*
Chandalika: *Rabindra Nath Tagore*
Chemmeen: *Thakazhi Sivasankara Pillai*
Cherry Orchard: *Anton Chekov*

Chesapeake: *James A. Michener*
Chidambara: *Sumitranandan Pant*
Childe Harold: *Lord Byron*
China's Watergate: *Leo Goodstadt*
Chinese Betrayal: *B.N. Malik*
Chitra:*Rabindra Nath Tagore*
Chithirappaavai: *P.V. Akilandam*
Choma's Drum: *K. Shivaram Karanth*
Chronicle of a Death Foretold: *Gabriel Garcia Marquez*
Class, The: *Erich Segal*
Climate of Treason: *Andrew Boyle*
Comedy of Errors: *William Shakespeare*
Common Sense: *Thomas Paine*
Communist Manifesto: *Karl Marx*
Confessions: *Jean Jacques Rousseau*
Confessions of a Lover: *Mulk Raj Anand*
Confessions of an Opium Eater, The: *Thomas Dequincey*
Confidential Clerk: *T.S. Eliot*
Conquest of Self: *Mahatma Gandhi*
Continent of Circe: *Nirad C Choudhury*
Coolie: *Mulk Raj Anand*
Count of Monte Cristo: *Alexander Dumas*
Coup, The: *John Updike*
Court Dancer, The: *Rabindra Nath Tagore*
Coverley Papers: *Joseph Addison*
Crescent Moon: *Rabindra Nath Tagore*
Crime and Punishment: *Feodor Dostoyevsky*
Crisis in India, The: *Roonald Segal*
Crisis into Chaos: *E.M.S. Namboodiripad*
Cry My Beloved Country: *Alan Patan*
Culture in the Vanity Bag: *Nirad C. Choudhury*
Curtain Raisers: *K. Natwar Singh*

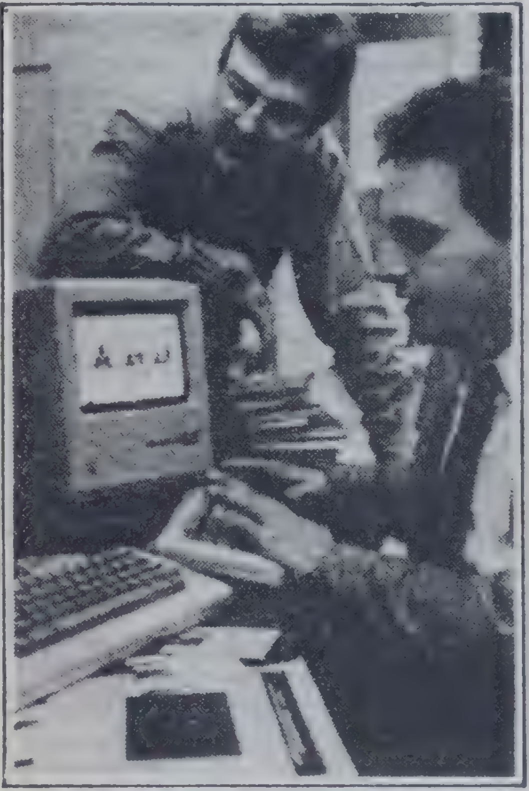
Darkness at Noon: *Arthur Koestler*
Dark Room, The: *R.K. Narayan*
Das Kapital: *Karl Marx*
David Copperfield: *Charles Dickens*
Dean's December, The: *Saul Bellow*
Death of a City: *Amrita Pritam*
Death of a Patriot: *R.E. Harrington*
Death of a President: *William Manchester*
Debacle: *Emile Zola*
Decameron: *Giovanni Boccaccio*
Decline and Fall of the Roman Empire: *Edward Gibbon*
Decline and Fall of Indira Gandhi: *D. R. Mankekar & Kamala Mankekar*
Democracy means Bread and Freedom: *Piloo Mody*
Democracy Redeemed: *V.K. Narasimhan*
Descent of Man: *Charles Darwin*
Deserted Village: *Oliver Goldsmith*
Devdas: *Sharat Chandra Chatterjee*
Dilemma of Our Time: *Harold Joseph Laski*
Diplomacy in Peace and War: *T.N. Kaul*
Discovery of India: *Jawaharlal Nehru*
Distant Drums: *Manohar Malgonkar*
Divine Comedy: *Alighieri Dante*
Divine Life: *Swami Sivananda*
Doctor's Dilemma: *George Bernard Shaw*
Dr. Jekyll and Mr. Hyde: *Robert Louis Stevenson*
Dr. Zhivago: *Boris Pasternak*
Don Juan: *Lord Byron*
Don Quixote: *Miguel de Cervantes*
Durgesh Nandini: *Bankim Chandra Chatterjee*
Dynamics of Social Change: *Chandra Shekhar*

Earth: *Emile Zola*
Economic Planning of India: *Ashok Mehta*
Economics of the Third World: *S.K. Ray*
Education of Public Man, The: *Hubert Humphrey*
Elegy written in a Country Churchyard: *Thomas Gray*
Emma: *Jane Austen*
Ends and Means: *Aldous Huxley*
Envoy to Nehru: *Escott Reid*
Essays for Poor to the Rich: *John Kenneth Galbraith*
Essays of Elia: *Charles Lamb*
Essays on Gita: *Sri Aurobindo Ghosh*
Eternal Himalayas: *Major H.P.S. Ahluwalia*
Executioner's Song: *Norman Mailer*
Expanding Universe: *Arthur Stanley Eddington*
Experiments with Untruth: *Michael Henderson*
Eye of the Storm, The: *Patrick White*

Face to Face: *Lasse & Mrs. Lisa Berg*
Faces of Everest: *Major H.P.S. Ahluwalia*
Family Reunion: *T.S. Eliot*
Far from the Madding Crowd: *Thomas Hardy*
Far Pavilions, The: *M.M. Kaye*
Faraway Music, The: *Svetlana Allilueva*
Farewell the Trumpets: *James Morris*
Farewell to Arms: *Ernest Hemingway*
Farm House: *George Orwell*
Father and Sons: *Ivan Turgenev*
Faust: *J.W. Von Goethe*
Fidelio: *L. Beethoven*
Fifth Horseman, The: *Larry Collins & Dominique Lapierre*
Final Days, The: *Bob Woodward & Carl Bernstein*
Finding a Voice—Asian Women in Britain: *Amrit Wilson*
Fire Next Time, The: *James Baldwin*
First Circle: *Alexander Solzhentisyn*
Flames from the Ashes: *P.D. Tandon*
Flounder, The: *Gunter Grass*
Food, Nutrition and Poverty in India: *V.K.R.V. Rao*
For Whom the Bell Tolls: *Ernest Hemingway*
Forbidden Sea, The: *Tara Ali Baig*
Forsyth Saga: *John Galsworthy*
Fortynine Days: *Amrita Pritam*
Freedom at Midnight: *Larry Collins & Dominique Lapierre*
French Revolution: *Thomas Carlyle*
Friends and Foes: *Sheikh Mujibur Rahman*
From India to America: *S. Chandrasekhar*

Ganadevata: *Tara Shankar Bandopadhyaya*
Gandhi and Stalin: *Louis Fisher*
Gardener: *Rabindra Nath Tagore*

Desktop Publishing Grows



Desktop publishing is a technology that allows people with a personal computer to design and produce documents that look almost as though they have been typeset professionally.

Desktop publishing, barely four years old, is starting to transform the field of publishing by opening it to a great many people who could not have afforded to publish before. Enthusiasts see the change as the latest example of how computer technology is extending power from a relative handful of major publishing institutions, such as the newspapers, book publishers to a broader assortment of individual voices.

Desktop publishing requires a personal computer, a laser printer and software for word processing, charts or drawings if desired and desktop publishing applications such as layout. Getting started can cost as little as $ 2,000 (about Rs. 25,000). A laser printer costs at least another $ 2,000 but such printers are now in many copy shops.

The flowering of home publishers poses no threat to the major institutions. By lowering the cost of publishing, the technology allows a great diversity of publications aimed at narrower interests to spring up.

Already, desktop publishing is allowing small nonprofit groups and underfinanced political campaigns to produce publications that look as fancy as those of well-heeled organizations.

The technology is also being used extensively within corporate offices and by small businesses to produce everything from office memos and technical manuals to brochures and business forms, posters and menus.

As the technology spreads, it will raise the standard of an acceptable document. In the future, a letter or report that is typewritten, instead of typeset, will be considered shoddy.

Desktop publishing does not replace the traditional printing press, but merely automates typesetting and page layout. Those functions normally involve expensive typesetting equipment and the cutting and pasting of columns of type onto dummy pages, which are photographed to make plates for the printing press.

With a personal computer, text can be set in neat columns in virtually any size and style. The layout, including text and graphics, can be done on the computer screen. The laser printer prints out a copy of the page that can be sent to printer. For small batches, the page can be duplicated on a photocopier.

The use of personal computers for layout and typesetting began in 1985 in the U.S., when Apple Computer Inc. *introduced its laser printer. So far, Apple's Macintosh personal computer and laser printer have been the system most widely used for desktop publishing, and the technology has been responsible for a big increase in Apple's sales.*

Gathering Storm: *Winston Churchill*
Ghasiram Kotwal: *Vijay Tendulkar*
Gitanjali: *Rabindra Nath Tagore*
Glimpses of World History: *Jawaharlal Nehru*
Godan: *Prem Chand*
Godfather, The: *Mario Puzo*
Golden Threshold: *Sarojini Naidu*
Gone with the Wind: *Margaret Mitchel*
Good Earth: *Pearl S. Buck*
Grammar of Politics: *Harold Joseph Laski*
Grapes of Wrath: *John Steinbeck*
Great Challenge, The: *Louis Fischer*
Great Expectations: *Charles Dickens*
Great Gatsby: *F. Scott Fitzgerald*
Great Tragedy: *Z.A. Bhutto*
Guide: *R.K. Narayan*
Gulag Archipelago: *Alexander Solzhenitsyn*
Gulliver's Travels: *Jonathan Swift*

Hamlet: *William Shakespeare*
Heat and Dust: *Ruth Prawer Jhabwala*
Heir Apparent: *Dr. Karan Singh*
Heroes and Hero Worship: *Thomas Carlyle*
Himalayan Blunder: *Brigadier J.P. Dalvi*
Hindu View of Life: *Dr. S. Radhakrishnan*
Hinduisim: *Nirad C. Choudhury*
House Divided: *Pearl S. Buck*
Human Factor: *Graham Greene*
Humboldt' Gift, The: *Saul Bellow*
Hunchback of Notre Dame: *Victor Hugo*
Hungry Stones: *Rabindra Nath Tagore*

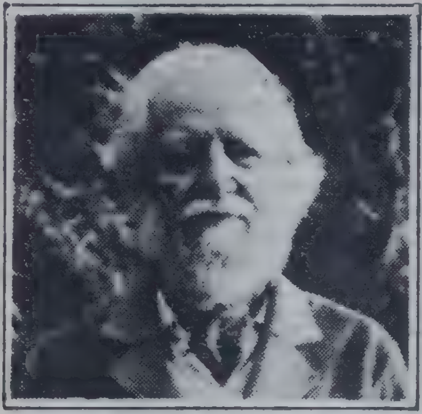
I follow the Mahatma: *K.M. Munshi*
Idiot, The: *Feodor Dostoyevsky*
Idols: *Sunil Gavaskar*
If I am Assassinated: *Z.A. Bhutto*
Importance of Being Earnest: *Oscar Wilde*
In Evil Hour: *Gabriel Garcia Marques*
In Memoriam: *Alfred Lord Tennyson*
In Search of Gandhi: *Richard Attenborough*
In Search of Identity: *Anwar el-Sadat*
India, The Critical Years: *Kuldip Nayar*
India Changes: *Taya Zinkin*
India Discovered: *John Keay*
India Divided: *Rajendra Prasad*
India of Our Dreams: *M.V. Kamath*
India Remembered: *Percival & Margaret Spear*
India Wins Freedom: *Abdul Kalam Azad*
Indian Philosophy: *Dr. S. Radhakrishanan*
India's China War: *Neville Maxwell*
India's Priceless Heritage: *N.A. Palkhivala*
Indira Gandhi's Emergence and Style: *Nayantara Sahgal*
Indira's India: *S. Nihal Singh*
Inside Asia, Inside Europe, Inside Africa, etc.: *John Gunther*
Intimacy: *Jean Paul Sartre*
Invisible Man: *H.G. Wells*
Isabella: *John Keats*
Islamic Bomb: *Stev Weissman & Herbert Krousney*
Island in the Streams: *Ernest Hemingway*
Is Paris Burning?: *Larry Collins & Dominique Lapierre*
Ivanhoe: *Sir Walter Scott*
Jane Eyre: *Charlotte Bronte*
Jean Christopher: *Romain Rolland*
Jobs for the Millions: *V.V. Giri*
Julius Caesar: *William Shakespeare*
Jungle Book: *Rudyard Kipling*

Kayar: *Thakazhi Sivasankara Pillai*
Kagaz Te Kanwas: *Amrita Pritam*
Kamayani: *Jai Shankar Prasad*
Kamasutra: *Vatsyayana*
Kanthapura: *Raja Rao*
Kapal Kundala: *Bankim Chandra Chatterjee*
Kenilworth: *Sir Walter Scott*
Kidnapped: *Robert Louis Stevenson*
Kim: *Rudyard Kipling*
King of Dark Chamber *Rabindra Nath Tagore*
King Lear: *William Shakespeare*
Kissinger Years, The: *T.N. Kaul*
Kore Kagaz: *Amrita Pritam*
Kubla Khan: *Samuel Taylor Coleridge*

Lady Chatterley's Lover: *D.H.Lawrence*
Last Days of Pompeii: *Edward George Lytton*
Laws Versus Justice: *V. R. Krishna Iyer*
Last Maharaja, The: *Jean Louis Nou & Jacques Pouchepadass*
Last Things: *C.P. Snow*
Lead Kindly Light: *Vincent Shean*
Leaders: *Richard Nixon*
Leaves of Grass: *Walt Whitman*
Le Contract (Social Contract): *J.J. Rousseau*
Les Miserables: *Victor Hugo*
Letters From the Field: *Margaret Mead*
Leviathan: *Thomas Hobbes*
Life Divine: *Sri Aurobindo*
Life of Dr. Johnson: *James Boswell*
Lolita: *Vladimir Nabakov*
Lost Honour: *John Dean*
Love Story: *Erich Segel*

Macbeth: *William Shakespeare*
Magic Mountain: *Thomas Mann*
Main Street: *Sinclair Lewis*
Major Barbara: *George Bernard Shaw*
Making of a Midsummer Night's Dream, The: *David Selbourne*
Man and Superman: *George Bernard Shaw*
Man Eaters of Kumaon: *Jim Corbett*
Man of Destiny: *George Bernard Shaw*
Mankind and Mother Earth: *Arnold Toynbee*
Many Worlds: *K.P.S. Menon*
Marriage and Morals: *Bertrand Russel*
Masters, The: *C.P. Snow*
Maurice: *E.M. Forster*
Mayor of Casterbridge: *Thomas Hardy*
Mein Kampf: *Adolf Hitler*
Memories of Hope: *Gen. Charles de Gaulle*
Men Who Killed Gandhi, The: *Manohar Malgonkar*

Keep Going, Write On and On...



William Golding

While I have been described variously as a philosopher, historian and psychologist I consider myself primarily a story-teller. I am fascinated with the perennial power exerted by the story on the human psyche.

If you sit a child upon your knee and begin, 'Once upon a time....', you know that you have got him.

I am still haunted by the phrase, 'original sin.' but I also believe in 'original virtue'. But why have people reading my books chosen only to pick on my concern with original sin? I do believe that there is original virtue too. Man is created with the knowledge of both the good and the evil and has a capacity to do either.

The Lord of the Flies *came out of my own reaction to the Second World War. It was not so much what happened in the war as finding out after the war what people had done to each other that disturbed me. The dominant emotion behind the* "Lord of the Flies" *is grief. It is a picture of what human society is, really like.*

I was sitting by the fire in my country cottage reading one of the books Coral Island or Treasure Island. *And I thought that it was extraordinary how in these books, boys cast ashore on islands seemed to behave like perfect angels. So I thought, wouldn't it be a good idea to write a book about boys on an island behaving as boys really would?*

The dominant presence in my writing has been the sea. I spend hours gazing at the sea and to me the sea is not a single image but represents the depths of human consciousness.

The literary form nearest to my heart would probably be the Greek tragedy. Many of the stories might have taken the form of a Greek tragedy. It has two elements in it-it has relatively simple characters. You never find complicated, psychological studies there. Second, they have a simple structure as the tension buils up throughout the play until the final catastrophe.

Good writers are born and not made. Some sort of writers could be made too. They would, however, be pedestrian. There would be no spark in them.

It is hard to describe inspiration. I myself write only when I get an idea. My books are written under the shadow of an idea.

Symbols should be an intrisic part of the story. When I used the symbol of the conch shell in Lord of Flies *I was not aware of its religious symbol in India. It came right out of my unconscious. Symbols are not something to be interpolated into the story later like the participant at a writer's workshop did.*

My message to the aspiring young writers: Keep going. Write on and on. Never stop. Never give up.

(Excerpts from speeches made in India. Mr. Godling who won the Nobel Prize for Literature in 1983 visited India during January 1987.)

Merchant of Venice The: *William Shakespeare*
Middle Ground, The: *Margaret Drabble*
Middle March: *George Eliot*
Midnight's Children: *Salman Rushdie*
Mill on the Floss: *George Eliot*
Miser, The: *Moliere*
Moby Dick: *Hermann Melville*
Moon and Six Pence: *W. Somerset Maugham*
Moonlight Sonata: *L.B. Beethoven*
Mother: *Maxim Gorky*
Mother India: *Katherine Mayo*
Mrs. Gandhi's Second Reign: *Arun Shourie*
Much Ado About Nothing: *William Shakespeare*
Murder in the Cathedral: *T. S. Eliot*
My Days: *R.K. Narayan*
My Experiments with Truth: *Mahatma Gandhi*
My India: *S. Nihal Singh*
My Life and Times: *V.V. Giri*
My Own Boswell: *M. Hidayatullah*
My Struggles: *E.K. Nayanar*
My Truth: *Indira Gandhi*
Naked Face, The: *Sidney Sheldon*
Nana: *Emile Zola*
New Dimensions of India's Foreign Policy: *Atal Behari Vajpayee.*
Nineteen Eighty Four: *George Orwell.*
Nisheeth: *Uma Shankar Joshi.*

O' Jerusalem: *Larry Collins & Dominique Lapierre.*
Odakkuzhal: *G. Shankara Kurup*
Of Human Bondage: *W. Somerset Maugham*
Old Man and the Sea: *Ernest Hemingway*
Oliver Twist: *Charles Dickens*
Oliver's Story: *Erich Segal*
One day in the Life of Ivan Denisovich: *Alexander Solzhenitsyn*
One Hundred Years of Solitude: *Gabriel Garcia Marquez*
One World: *Wendell Wilkie*
One World and India: *Arnold Toynbee*
One World to Share: *Shridhath Ramphal*
Origin of Species: *Charles Darwin*
Oru Desathinte Katha: *S.K. Pottekkatt*
Othello: *William Shakespeare*
Other Side of Midnight, The: *Sidney Sheldon*
Our Films Their Films: *Satyajit Ray*

Painted Veil: *W. Somerset Maugham*
Painter of Signs: *R.K. Narayan*
Pakistan Cut to Size: *D.R. Mankekar*
Pakistan, The Gathering Storm: *Benazir Bhutto*
Panchatantra: *Vishnu Sharma*
Paradise Lost: *John Milton*
Pather Panchali: *Bibhuti Bhushan Banerjee*
Peter Pan: *J.M. Barrie*
Pickwick Papers: *Charles Dickens*
Pilgrim's Progress: *John Bunyan*
Portrait of India: *Ved Mehta*
Post Office: *Rabindra Nath Tagore*
Power and Glory: *Graham Greene*
Power That Be, The: *David Halberstan*
Prathama Pratishruti: *Ashapurna Devi*
Prelude: *William Wordsworth*
Price of Power: Kissinger in the Nixon White House: *Seymour M. Hersh*
Pride and Prejudice: *Jane Austen*
Prince: *Niccolo Machiavelli*
Prison Diary: *Jayaprakash Narayan*
The Prisoner of Zenda: *Anthony Hope*
Promises to Keep: *Chester Bowles*
Prussian Nights: *Alexander Solzhenitsyn*
Pygmalion: *George Bernard Shaw*

R Document, The: *Irving Wallace*
Rage of Angels: *Sidney Sheldon*
Ragtime: *E.L. Doctorow*
Rain King, The: *Saul Bellow*
Rangbhoomi: *Prem Chand*
Rape of Bangladesh: *Anthony Mascarenhas*
Rape of the Lock: *Alexander Pope*
Rebel, The: *Albert Camus*
Rebirth: *Leonid Brezhnev*
Red and Black, The; *Stendhal*
Red Badge of Courage: *Stephan Crane*
Red Star Over China: *Edgar Snow*
Reflections on the French Revolution: *Edmund Burke*
Return of the Native, The: *Thomas Hardy*
Riding the Storm: *Harold MacMillan*
Rights of Man: *Thomas Paine*
Robe, The: *Lloyd C. Douglas*
Robinson Crusoe: *Daniel Defoe*
Romeo and Juliet: *William Shakespeare*
Rubaiyat-i Omar Khayyam: *Edward Fitzgerald*

Saket: *Maithili Sharan Gupta*
Sanctuary: *William Faulkner*
Scarlet Letter: *Nathaniel Hawthorne*
Seven Lamps of Architecture: *John Ruskin*
Seven Summers: *Mulk Raj Anand*
Shadow from Ladakh: *Bhabani Bhattacharya*
Shape of Things to Come: *H.G. Wells*
She Stoops to Conquer: *Oliver Goldsmith*
Ship of Fools: *Katherine Anne Porter*
Shoes of the Fisherman, The: *Morris L. West*
Six Characters in Search of an Author: *Lugi Pirandello*
Small Land: *Leonid Brezhnev*
Sohrab and Rustam: *Mathew Arnold*
Songs of India, The: *Sarojini Naidu*
Sons and Lovers: *D.H. Lawrence*
Sound and Fury, The: *William Faulkner*
Spirit of the Age: *William Hazlitt*
Story of a Real Man: *Nikolayev Polevoi*
Story of My Experiments with Truth: *M. K Gandhi*
Story of My Life: *Moshe Dayan*
Strangers and Brothers: *C.P. Snow*
Sunny Days: *Sunil Gavaskar*
Swami and Friends: *R.K. Narayan*
Sword and the Sickle: *Mulk Raj Anand*

Talisman: *Sir Walter Scott*
Tarzan of the Apes: *Edgar Rice Burroughs*

Tempest: *William Shakespeare*
Thank You, Jeeves: *P.G. Wodehouse*
Thirteenth Sun, The: *Amrita Pritam*
Thorn Birds: *Colleen McCulough*
Through the Indian Looking Glass: *David Selbourne*
Thus Spake Zarathustra: *Friedrich Wilhelm Nietzsche*
Time Machine: *H.G. Wells*
Tom Jones: *Henry Fielding*
Treasure Island: *Robert Louis Stevenson*
Trial, The: *Franz Kafka*
Trinity: *Leon Uris*
Tropic of Cancer: *Henry Miller*
Tryst with Destiny: *S. Gopalan*
Twelfth Night: *William Shakespeare*
Two Faces of Indira Gandhi: *Uma Vasudev*
Two leaves and a Bud: *Mulk Raj Anand*
Two Women: *Alberto Moravia*

Ulysses: *James Joyce*
Uncle Tom's Cabin: *Harriet Beecher Stowe*
Unto The Last: *John Ruskin*
Untold Story: *General B.M. Kaul*
Utopia: *Thomas Moore*

Valley of Dolls: *Jacqueline Susann*
Vanity Fair: *William Thackeray*
Vendor of Sweets, The: *R.K. Narayan*
Vicar of Wakefield: *Oliver Goldsmith*
Voice of Conscience: *V.V. Giri*

Waiting for Godot: *Thomas Becket*
Wake Up India: *Annie Besant*
War and Peace: *Leo Tolstoy*
Waste Land: *T.S. Eliot*
Way of all Flesh: *Samuel Butler*
Wealth of Nations: *Adam Smith*
We Indians: *Khushwant Singh*
Westward Ho: *Charles Kingsley*
Where the Grass is Greener: *David M. Smith*
White House Years: *Dr. Henry Kissinger*
Without Fear or Favour: *Harison E Salisbury*
Witness to an Era: *Frank Moraes*
Wuthering Heights: *Emily Bronte*

Yayati: *V.S. Khandekar*
Year of the Upheaval: *Henry Kissinger*
Yesterday and Toady: *K.P.S. Menon*

Zulfi, My friend: *Piloo Mody*

THE SUPERLATIVES

The Superlatives are broadly classified into the Human World, the Natural World and the Scientific World. Man's achievements on the Earth and in outer space are also highlighted.

Human World

Tallest Man recorded: Robert Pershing Wadlow (1918-40) born at Alton, Illinois, USA; 272 cm (8 ft 11.5 in).

Tallest Living Man: Gabriel Estevao Monjane, born 1944, Mozambique. 8 ft 0.¾ in (245.7 cm) (The Pakistani Mohamed Aalam Channa's claim to this honour proved to be a tall claim.)

Tallest Woman recorded: Zeng Jinlian (pronounced San Chung Lin) (964-82) of China. 247 cm (8 ft 1 in).

Tallest Living Woman: Sandy Allen of Canada: 271.7 cm (7 ft 7¼ in). She now weighs 462 lb (210 kg).

Heaviest Man: Jon Brower Monnoch (1741-83), Washington, USA. He weighed 635 Kg (1400 lb).

Heaviest Woman: Percy Pearl of Washington, USA (1926-1972). 399 kg (880 lb).

Oldest Man ever lived (Authenticated): Shigechiyo Izumi, Japan (1865-1983). Born on June 29, 1865, he was recorded as a 6-year-old in Japan's first census of 1871. He died at the age of 118.

Most Children: The greatest officially recorded number of children produced by a mother is 69 by the first of the two wives of Feodor Vassilyev (1707-1782) of USSR. In 27 confinements she gave birth to 16 pairs of twins, 7 sets of triplets and 4 sets of quadruplets.

Most Prolific Mother (living): Leontina Albina (b. 1925), Chile. She was reported to be pregnant in Nov. 1980 having already produced 44 children.

First Siamese Twins: Chang and Eng Bunker (Known in Thailand as Chan and In) born at Meklong on May 11, 1811 of Chinese parents. They died within three hours of each other on Jan. 17, 1874, aged 62.

First Test Tube Baby: Louise Brown (5 lb 12 oz) (2.6 kg) was delivered by caesarian section of Lesley Brown, 31, in Oldham General Hospital, Lancashire, England at 11.47 p.m. on July 25, 1978.

First Human Heart Transplant: Was performed on Louis Washkansky, 55, at the

Groote Schuur Hospital, Cape Town, S. Aftrica, on Dec. 3, 1967 by a team of 30 led by Prof. Christian Neethling Barnard. The donor was Miss Denise Ann Darvall, aged 25. Washkansky died on Dec. 21, 1967.

First Artificial Heart: Dr. Burney B. Clark, 61, of Wisconsin, USA received the first artificial heart on Dec 1-2, 1982 at the Utah Medical Centre, Salt Lake City, Utah. The Surgeon was Dr. William C de Vries. The heart was a mark 7 Jarvik 7 designed by Dr. Robert Jarvik. Dr. Clark died on March 23, 1983, 112 days later.

Birthday Celebration: On May 27, 1987 about 3.5 lakh citizens of the U.S. in the City of San Francisco walked across the Golden Gate Bridge to celebrate the 50th anniversary. Five decades ago, the first birthday of the bridge, an engineering marvel in the world, was celebrated by thousands walking across.

Natural World

Largest and Heaviest Animal: The Blue or Sulpher-bottom Whale. The largest speciman ever recorded was a female landed at Falkland Islands, in 1904. She measured 33.58 m (110 ft 2.5 in) in length. Another female measuring 27.6 m (90 ft 6 in) was caught in the Southern Ocean by the Soviet 'Slava' whaling fleet on March 20, 1947. It weighed 190 tonnes.

Tallest Living Animal: the Giraffe, now found only in the dry savannah and semi-desert areas of Africa. The tallest ever recorded was a Masai bull named 'George' received at Chester Zoo, England on Jan. 8, 1959, from Kenya. His horns almost touched the roof of the 20 ft (6.09 m) high Giraffe House when he was 6 years old. George died on July 22, 1969.

Fastest Moving Animal: The Peregrine Falcon, which has been timed electronically at 350 km/h (217 m/h) in 1963 in Germany while making a scoop at a 45° angle of descent. The fastest bird in level flight is the white-throated Spinetail Swift of Asia. In 1942 air speed upto 171 km/h (106.25 m/h) was recorded for this species in the USSR.

Largest Living Animal: The African bush elephant. The average adult bull stands 10 ft 6 in (3.2 m) at the shoulder and weighs 5.7 tonnes. The largest specimen ever recorded was a bull shot in Southern Angola on Nov. 7, 1974. It had a height of 13 ft (3.96 m).

Fastest Land Animal over short distance (ie upto 60 yd (549 m): The Cheetah or Hunting Leopard of the plains of East Africa, Iran, Turkmenia and Afghanistan, with a probable maximum speed of 60-63 m/h (95-101 km/h) over suitably level ground.

Tallest Tree: The redwood near the coast of

California. The tallest measured example is the 'Tallest Tree' in Red Wood Creek Grove, Humboldt County, California, discovered in 1963. It is 367.8 ft (112.1 m) tall and has a girth of 43 ft 11 in (13.38 m).

Most Massive Tree: Giant Sequoia named the 'General Sherman' standing 272.4 ft (83.02 m) tall in the Sequoia National Park, California. It has a girth of 79.8 ft (24.32 m) above the ground. This tree has been estimated to contain the equivalent of 600,120 board feet of lumber sufficient to make 5,000,000,000 matches.

Most Massive Tree Canopy: The Great Banyan tree (Ficus bengalensis) in the Indian Botanical Garden, Calcutta. It has some 1,000 subsidiary trunks formed from aerial roots. It covers some 4 acres (1.6 ha) and is believed to date from c. 1770.

Largest Forest: The vast coniferous forests of the northern USSR lying mainly between latitude 55°N, and the Arctic Circle. The total wooded area amounts to 2,700,000,000 acres or 1100 million ha (25 percent of the world's forests), of which 38 percent is Siberian larch.

Largest Park: The Wood Buffalo National Park in Alberta, Canada established in 1922 has an area of 11,172,000 acres (17,560 sq miles or 4548 sq km)

Greatest Rainfall (24 hrs): 73.62 in or 1870 mm Cilaos La Reunion, Indian Ocean, March 15-16-1952. Greatest Rainfall (Calendar month): 366.14 in or 9299 mm, Chirapunji, Meghalaya, India in July 1861. Greatest Rainfall (12 months): 1041.78 in (26,461 mm) Cherapunji, Meghalaya, India, 1-8-1860–31-7-1861.

Maximum Sunshine: 97 percent (over 4300 hrs), eastern Sahara, annual average. Hottest place: (Annual mean): Dallol, Ethiopia: 94° F or 34.4 C (1960-66).

Longest Drought: c. 400 years to 1971. Desierto de Atacama, Chile.

Coldest Place (Extrapolated Annual Mean): Polus Nedostupnosti, pole of Cold (78° S (96°E), Antarctica, -72°F or -57.8°C. Coldest measured mean: -70°F or -56.6°C. Plateau Station, Anarctica. Wettest place (Annual Mean): Mt.Wai-ale-ale (5148 ft (1569 m) in Kauai, Hawaii, 451 in (11455 mm), average 1920-72. In 1948, 621 in (15773 mm).

Largest Ocean: the Pacific; representing 45.8 per cent the World's Oceans it covers an area

Jarvik Heart for Brainy Belle

Dr. Robert Jarvik

The bride was billed as the most intelligent person in the world. She was given away by a science fiction writer on Sunday August 23, 1987 to the inventor of the Jarvik artificial heart.

The guest list at the New York wedding of Dr. Robert Jarvik, 41, and Marilyn vos Savant, 40, included some of more than 60 recipients of the Jarvik heart, which has been used to keep transplant patients going while they await a suitable donor heart from another human.

The new Mrs. Jarvik is listed in the Guinness book of world records as having the world's highest IQ.

The couple have rented an apartment in Paris for a month-long honeymoon in September. It was the groom's second wedding and the bride's third.

of 64,186,000 sq miles or 166240000 sq km

Deepest part of Ocean: in the Marianas Trench in the Pacific Ocean; has a depth of 5968 fathoms (35,808 ft or 10914 m) or 6.78 miles (10.91 km).

Largest sea: the South China Sea with an area of 1,148,500 sq miles or 2974600 sq km.

Longest Straits: the Tatarskiy Proliv or Tartar Straits between Sakhalin Island and the USSR mainland, running from the Sea of Japan to Sakhalinsky Zaliv. This distance is 800 km or 497 miles– thus marginally longer than the Malacca Straits.

Largest Gulf: the Gulf of Mexico, with an area of 580,000 sq miles or 1500,000 sq km, and a shoreline of 3100 miles or 4990 km from Cape Sable, Florida, to Cabo Catoche, Mexico.

Largest Bay: measured by shore-line length is Hudson Bay, Northern Canada, with a shoreline of 7,623 miles or 12268 km with an area of 317,500 sq miles or 822300 sq km. The area of Bay of Bengal is however 839,000 sq miles or 2,172,000 sq km.

Largest Land Mass: The Eurasian land with an area (including Islands) of 20733,000 sq miles or 53698,000 sq km.

Smallest Land Mass: the Australian Mainland with an area of 2,941,526 sq miles or 7,618,493 sq km which, together with Tasmania, New Zealand, New Guinea and the Pacific Islands is sometimes described as Oceania.

Largest Peninsula: Arabia with an area of 1,250,000 sq miles or 3,250,000 sq km.

Largest Island: Discounting Australia, which is usually recorded as a continental land mass, the largest island is Greenland (Re-named Kalaatdlit Nunaat, May 1, 1979), with an area of about 840,000 sq miles or 2175,000 sq km.

Greatest Archipelago: 3,500-mile or 5600-km long crescents of more than 13,000 islands which form Indonesia.

Highest Mountain Peak: The Eastern Himalayan peak Mount Everest 29,028 ft or 8848 metre above sea level on the Tibet- Nepal border. The peak was named after Col. Sir George Everest (1790–1866), formerly Surveyor General of India.

Largest Lake (Inland Sea): the Kaspiskoye More (Caspian Sea) in the Southern USSR and Iran. It is 760 miles or 1225 km long and its total area is 360700 sq km or 13,900 sq miles.

Largest Fresh Water Lake: Lake Superior, one of the Great Lakes of N.America, has the greatest surface area in the world. Its total area is 31800 sq miles or 82350 sq. km. The fresh Water Lake with the greatest volume is the Baykal, in Siberia, USSR, with an estimated volume of 5,520 cubic miles or 23000 cubic km.

Largest Desert: The Sahara in N. Africa. At its greatest length it is 3200 miles or 5150 km from east to west. From North to South, it is between 800 and 1400 miles or 1275 and 2250 km. Area covered by the desert is about 3,250,000 sq miles or 8400000 sq km.

Highest Water Fall: Salto Angel Falls in Venezuela on a branch of the river Carrao. It has a total depth of 3,212 ft or 979 metre.

Longest River: The two longest rivers in the World are Amazon, flowing into the South Atlantic and the Nile, flowing into the Mediterranean. Which is longer is more a matter of definition than simple measurement. The Amazon has a length of 4007 miles or 6448 km. The length of the Nile is 4145 miles or 6670 km. However, the length of these rivers vary if measured along different courses.

Scientific World

Largest Planet: Jupiter, with an equatorial diameter of 88,846 miles or 142,984 km and a polar diameter of 83,082 miles or 133,708 km is the largest of the 9 major planets, with a mass of 317.83 times, and a volume of 1321.4 times that of the Earth.

Smallest Planet: Pluto with a diameter of about 3000 km or 1880 miles and the mass is about 1/500 of the Earth.

Fastest Planet: Mercury, which orbits the Sun at an average distance of 35,983,100 miles or 57,909,200 km, has a period of revolution of 879,686 days, so giving the highest average speed in orbit of 107,030 mph or 172,248 km/h.

Earliest Space Craft: Sputnik, owned by USSR, was the first artificial satellite successfully put into orbit on Oct. 4, 1957.

Shortest Dwarf (living): In July 1982 an unconfirmed height of 28 in (71 cm) was reported for a chicken farmer named Ghulam Ahmed Dar living near Srinagar in Kashmir.

Human Computer: Mrs. Shakuntala Devi of India demonstrated the multiplication of two 13-digit numbers 7,686,369,774,870 × 2,465,099,745,779 picked at random by the Computer Department of Imperial College, London, on 18 June 1980, in 28 sec. Her correct answer 18,947,668,177,995,426,462,773,730.

Greatest number of places of π (pi): Rajan Srinivasan Mahadevan, 23, recited 'pi' from memory (in English) 31811 places in 3 hr 49 min. (including 26 minutes of breaks) at the Lion Seva Mandir, Mangalore. His rate was 156.7 digits per minute.

Longest Finger Nails: The longest finger nails ever reported are those of Shridhal Chillal, (b. 1937) of Poona. The aggregate measurement, on 8 April 1985, was 143 in or 363 cm for the 5 nails on his left hand (thumb 34½ in or 86.4 cm). He last cut his nails in 1952.

Longest Hair: Swami Pandarasannadhi, the head of the Tirudaduturai monastery, Tanjore district, Madras, was reported in 1949 to have hair 26 ft. (7.92 m) in length.

INDIA IN THE GUINNESS BOOK

Longest Moustache: The longest moustache on record was that of Masuriya Din (b. 1908), a Brahmin of the Partabgarh District in Uttar Pradesh. It grew to an extended span of 8 ft 6 in (259 cm) between 1949 and 1962. Karna Ram Bheel (b. 1928) was granted permission by a New Delhi prison governor in February 1979 to keep his 7 ft 10 in (238 cm) moustache grown since 1949 during his life sentence.

Operations (Most): Padmabhushan Dr. M. C. Modi, a pioneer of mass eye surgery in India since 1943, has performed 833 cataract operations in a single working day.

Most Recordings: Miss Lata Mangeshkar (b. 1928) between 1948 and 1985 has reportedly recorded not less than 30,000 solo, duet and chorus backed songs in 20 Indian languages. She frequently had 5 sessions in a day and has 'backed' more than 2000 films.

Longest marriage (World): The longest recorded marriage was of 86 years between Sir Temulji Bhicaji Nariman and Lady Nariman from 1853 to 1940. It was a 'cousin-marriage' when both were five. Sir Temulji (b. 3 Sept. 1848) died, aged 91 years 11 months, in August 1940 at Bombay.

Camping Out: The silent Indian fakir Mastram Bapu has remained on the same spot by the roadside in the village of Chitra for 22 years 1960-82.

Crawling: Over a space of 15 months ending on 9 March 1985 Jagdish Chander, 32, crawled 1400 km — 870 miles from Aligarh to Jamma to propitiate his favourite Hindu goddess Mata.

Singing: Acharya Prem Bhikuji started chanting the Akhand Ram Dhun in 1964 and devotees took this up in rotation completing their devotions 13 years later on 31 July 1977 at Jamnagar.

Standing: The longest period on record that anyone has continuously stood is for more than 17 years in the case of Swami Maujgiri Maharaj when performing the Tapasya or penance from 1955 to November 1973 in Shahjahanpur, Uttar Pradesh. When sleeping he would lean against a plank. He died aged 85 in Sept. 1980.

Biggest manufacturer: The world's biggest manufacturer of bicycles is Hero Cycles of Ludhiana, Punjab, India, founded in 1956 by the Munjal brothers. In 1986 they turned out 2,220,000 units. China is estimated to have 210 million bicycles.

Most Prolific Murderer (World): It was established at the trial of Behram, the Indian thug, that he had strangled at least 931 victims with his yellow and white cloth strip or ruhmal in the Oudh District between 1790 and 1840.

Lata: Most Prolific Singer

Crowds (Largest): The greatest recorded number of human beings assembled with a common purpose was an estimated 12,700,000 at the Hindu festival of Kumbh-Mela, which was held at the confluence of the Yamuna (formerly called the Jumna), the Ganges and the invisible 'Sarasvati' at Allahabad, Uttar Pradesh, on 19 January 1977.

Largest Funerals: The funeral of the charismatic C. N. Annadurai (died 3 Feb. 1969) T. Nadu Chief Minister was, according to a police estimate, attended by 15 million.

The youngest Gold Medalist: Ved Prakash (India) won the light-flyweight wrestling title in 1970 aged probably 14, although one report gave his age as 12

Chess (origin): The game originated in ancient India under the name Chaturanga (literally 'four corps' an army game).

Individual Career Records — All First Class Cricket (FC) and Test Cricket (Test): Batting — Sunil Gavaskar, India (b. 10 July, 1949) (av 50.61), India (106 Tests) — 1971-85

Earliest Manned Satellite: First successful manned space flight took off from USSR on April 12, 1961. Flight Major (later Col) Yuri Gagarin was the first cosmonaut.

Earliest Walk in Space: The earliest instance of an astronaut floating free outside a space vehicle was Edward H White, for 21 minutes on June 3, 1965; Space craft- Gemini-IV.

Man's Longest Time in Space: 221 days by Anatoly Berezovoi and Valentin Lebedev on board the Research Station 'Salyut-7'.

Largest Space Object: The heaviest object orbited is the Apollo–XV, which weighed 138.29 tonnes or 140 512 kg.

Tallest Building: Sears Tower, the national headquarters of Sears, Roebuck & Co. in Chicago, USA with 110 storeys, rising to 1,454 ft or 443 metres. It surpassed World Trade Centre in New York City in height by 100 ft.

Tallest Tower: 'CN Tower' in Metro Centre, Toronto, Canada rises to 1822 ft 1 in or 555.33 metres. The tallest tower built before the era of television masts is the *Eiffel Tower* in Paris, France. Completed on March 31, 1889, it has a height of 320.75 metres or 1,056 ft 3 in.

Largest Stadium: Strahov in Praha (Prague), Czechoslovakia. Completed in 1934, it can accommodate 2,40,000 spectators.

Longest Bridge: The longest steel arch bridge in the world is New River Gorge Bridge in West Virginia, USA, completed in 1977 with a span of 1700 ft (518.2 metres).

Longest Railway Bridge: Huey P. Long Bridge, Louisiana, USA, which is 4.35 miles or 7 km long.

Highest Dam: The Grande in the Swiss Dixence Alps, built in 1961, has a height of 935 ft or 285 metres.

Longest Tunnel: For road traffic—the 10.14-mile (16.32 km) long two-lane St. Gotthard road tunnel from Goschenen to Airolo, Switzerland, opened in 1980.

Longest Tunnel: for rail traffic—the 22.2 km (13 miles 1397 Yd) long Oshimizu Tunnel on the Tokyo-Niigata Joestsu line in Central Honshu under the Tanigawa mountain, opend in 1979.

Longest Wall: The Great Wall of China, completed during 246-210 BC, has a mainline length of 2,150 miles or 3460 km.

Largest Passenger Ship: The world's largest and the longest liner is 'Norway' of 70,202.19 grt and 315.60m or 1035 ft 7½ in overall length. Owned by Knut Kloster of Norway.

Largest Cargo Vessel: Liberian ore/oil carrier 'World Gala' of 133,748 Gt or 282,462 dwt with a length of 1,109 ft or 338 m, owned by Liberian Trident Transports Inc., completed in 1973.

Largest Tanker: The world's largest tanker and ship of any kind is the 564,739-tonne deadweight "Seawise Giant", completed for C.Y. Tung in 1981.

Fastest Train: The highest speed recorded on any national rail system is 236 m/h or 380 km/h by the French SNCF high speed train TGV-Train-a Grande Vitesse, inaugurated in 1981.

Longest Rail Line: 9438 km or 5,864½ miles on the Trans-Siberian line from Moscow to Nakhodka, USSR. There are 97 stops in the journey which takes 8 days 4 hr 25 min.

Largest Air-liner: The highest capacity airliner is the Boeing 747 'Jumbo Jet', first flown in 1969. It has a capacity of from 385 to more than 500 passengers, with a maximum speed of 602 m/h or 969 km/h.

Fastest Airliner: The Supersonic BAC- Aerospatiale "Concorde", first flown in 1969, with a capacity of 128 passengers, cruises at up to Mach 2.2 (1450 m/h) or 2333 k/h.

Largest Airport: King Abdul-Aziz International Airport, near Jeddah, Saudi Arabia, covering an area of 40 sq. miles or 103 sq km. Its Hajj Terminal is the world's largest roofed structure, covering 1.5 sq km or 370 acres.

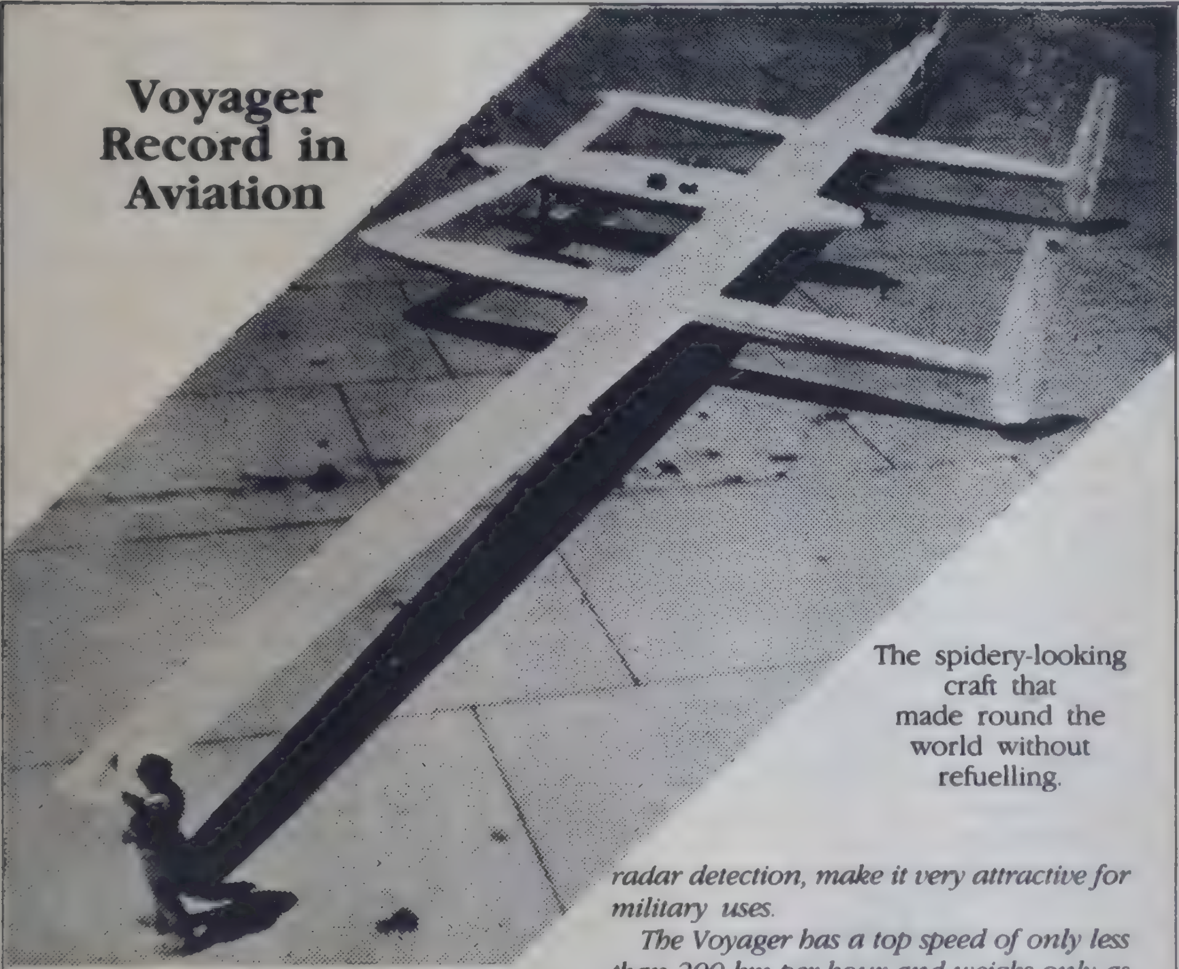
Largest Sea Port: Port of New York and New Jersey. It has a navigably wide front of 355 miles or 1215 km. A total of 261 cargo berths and 130 other piers give a total berth capacity for 391 ships at one time.

Busiest Port and Harbour: The World's busiest port and largest artificial harbour is Rotterdam - Europort in Netherlands, which handled 31,565 vessels in 1982.

Largest Airline: The USSR State Airline "Aerofloat", established in 1923. This airline operates 1300 aircrafts over about 560,000 miles or 9,00,000 km and employs about 5,00,00 persons. It carried 1.6 million passengers to 97 countries in 1981.

Fastest Typewriting: The highest recorded speed attained on a manual machine: 1 minute: 170 words--Margerette Owen, USA.

Voyager Record in Aviation



The spidery-looking craft that made round the world without refuelling.

The successful touchdown of Voyager *at California's Edward Air Force Base on December 23, 1986, after a nine-day non-stop flight around the globe has opened a new chapter in aviation history.*

The success of the mission is expected to have significant military and commercial implications. The aircraft used a new construction and signalled the success of metal substitutes called composite fibres. These fibres promise to be as strong as aluminium and steel and as light in weight as perhaps jute fibre.

Mr. Burt Rutan, who designed and developed the Voyager, believes that the materials that he used in the plane would make commercial flights cheaper and easier

Two distinct features of the Voyager, its range and resistance of its materials to radar detection, make it very attractive for military uses.

The Voyager has a top speed of only less than 200 km per hour and weighs only as much as a small car. But its wingspan is as much as that of a Boeing 727. Mr. Burt Rutan and his brother, Mr. Dick Rutan, with the help of their friends built the plane in a shed that they rented for $ 65 a month near an airport. It was Mr. Dick Rutan who piolted the Voyager on its 40,000 km flight, assisted by his girl friend, Ms. Jeana Yeager.

It took the two brothers six years and $ 2 million to build the plane. Much of the money came as contributions from friends and some business corporations that showed interest in the project

The material that Mr. Burt Rutan used was two layers of graphite fibre with an inner core of some other honeycombed composite. As a result, the Voyager was able to carry more than 3,000 kg of fuel, 17 tanks tucked into every inch of space.

machine: Underwood Standard, on October 21, 1918. 1 hour 147 words (net rate per min.): Albert Tangara, USA. Machine: Underwood Standard, on October 22,1923.

Largest Armed Force: Chinese People's Liberation Army with 4,230,000, according to 1982 census. Her para-military forces have been estimated at 12 million. In October 1985 China announced her intention of reducing the strength of PLA by one million.

Most Populous Country: China. The census of July 1982 shows a population of 1,008,175,288. The rate of increase in China is, now estimated to be 38 700 a day or 14.1 million per year.

Largest Election: that of January, 1980 for the 544 seats of Indian Lok Sabha. There were 362 million voters, from 23 States and 8 Union Territories, who voted Smt. Indira Gandhi to power.

SOBRIQUETS

Sobriquets are secondary names (including nicknames) that become attached to certain persons, places or things. Thus the Bank of England is known as the Old Maid of Threadneedle Street, and the *Malayala Manorama,* the oldest newspaper of Kerala as the Granny of Kottaym.

'Bismarck was known as the Man of Blood and Iron' and Florence Nightingale is famous as 'the Lady with the Lamp'. Tippu Sultan of Mysore is still spoken of as the 'Mysore Tiger'.

Some names, as H. W. Fowler observes, have a large retinue of sobriquets. Rome, for example, may be 'the Eternal City, The City on Seven Hills, the Papal City, the Scarlet Woman, the Scarlet Whore, the Empress of the Ancient World and the Western Babylon'. (M.E.U.)

Sobriquets		**Primary Names**
Bengal's Sorrow	...	River Damodar, Bengal, India
Blue Mountains	...	Nilgiri Hills, India
Britain of the South	...	New Zealand
City of the Golden Gate	...	San Francisco, USA
City of the Golden Temple	...	Amritsar, India
City of Dreaming Spires	...	Oxford, England
City of Magnificent Distances	...	Washington, D.C., USA
City of Palaces	...	Calcutta, India
Cockpit of Europe	...	Belgium
Dark Continent	...	Africa
Emerald Island	...	Ireland
Empire City/City of Skyscrapers	...	New York, USA
Forbidden City	...	Lhasa, Tibet
Garden of England	...	Kent, England
Garden of India	...	Bangalore
Gate of Tears	...	Bab-el-mandab
Gateway of India	...	Bombay
Gift of the Nile	...	Egypt
Granite City	...	Aberdeen, Scotland
Great White Way	...	Broadway, New York
Herring Pond	...	Atlantic Ocean
Holy Land	...	Palestine
Island of Cloves	...	Madagascar (Malagasy)
Island of Pearls	...	Bahrain
Key of the Mediterranean	...	Gibraltar
Land of Cakes	...	Scotland
Land of the Kangaroo	...	Australia
Land of the Golden Pagoda	...	Burma

Land of Lillies/Land of Maple	...	Canada
Land of Morning Calm	...	Korea
Land of the Midnight Sun	...	Norway
Land of the Rising Sun	...	Japan
Land of Five Rivers	...	Punjab, India
Land of Thousand Lakes	...	Finland
Land of the White Elephant	...	Thailand
Never Never Land	...	Prairies of N. Australia
Pearl of the Antilles	...	Cuba
Playground of Europe	...	Switzerland
Powder Keg of Europe	...	Balkans
Quaker City	...	Philadelphia
Queen of the Adriatic	...	Venice, Italy
Queen of the Arabian Sea/Venice of the East	...	Cochin, India
Roof of the World	...	Pamirs
Rose Pink City	...	Jaipur, India
Saint of the Gutters	...	Mother Teresa
Sick Man of Europe	...	Turkey
Sorrow of China	...	River Hwang Ho
Spice Garden of India	...	Kerala
White City	...	Belgrade, Yugoslavia
White Man's Grave	...	Guinea Coast
Windy City	...	Chicago, USA
World's Bread Basket	...	Prairies of N. America
World's Loneliest Island	...	Tristan da Cunha

ABBREVIATIONS

Abbreviations are an accepted form of usage in all developed languages. They save time and space—time in talking and space in writing. It is for this reason that abbreviations have become popular with all and sundry.

Formerly abbreviations were used sparingly. Only well known organisations, products, processes, or projects were indicated by their initials. Today, abbreviations are being bandied about indiscriminately. They are being used for all sorts of things, well known, little known and unknown.

AAPSO: Afro-Asian People's Solidarity Organisation.
ABC: Atomic Biological and Chemical (warfare); Audit Bureau of Circulation.
ABM: Anti-Ballistic Missile
AC: Ante Christum (Before Christ); Alternate Current (electricity); Asoka Chakra; Airconditioner.
A//c: Account
ACC: Auxiliary Cadet Corps; Associated Cement Companies
AD: Anno Domini (in the year of our Lord)
ADC: Aide-de-camp (helper or assistant)
ADB: Asian Development Bank
AEC: Atomic Energy Commission
AG: Accountant General; Adjutant General
AH: Anno Hegirae (Mohammed's flight from Makkah to Medina, 622 AD)
AHQ: Air Headquarters or Army Headquarters
AICC: All India Congress Committee
AI: Air India
AIDS: Acquired Immune Deficiency Syndrome
AIMA: All India Manufacturers' (and also Management) Association
AIMO: All India Manufacturers' Organisation
AINEC: All India Newspaper Editors Conference
AIIMS: All India Institute of Medical Sciences
AIR: All India Radio
AM: Ante Meridiem (before noon)
AITUC: All India Trade Union Congress
ANZAC: Australia, New Zealand Army Corps
ANZUS: Australia, New Zealand, United States of America (a term applied to the Pacific Pact amongst these powers)
AOC: Air Officer Commanding
APC: Agricultural Prices Commission
ARC: Administrative Reforms Commission
ARDC: Agricultural Refinance & Development Corporation
ARP: Air Raid Precautions
ASAT: Anti-Satellite
ASC: Army Service Corps.
ASI: Archaeological Survey of India
ASEAN: Association of South East Asian Nations

AVARD: Association of Voluntary Agencies for Rural Development.
AVSM: Ati Vishisht Seva Medal
AWACS: Airbourne Warning And Control System.

B.A.: Baccalaureus Artium; Bachelor of Arts; British Academy
BARC: Bhabha Atomic Research Centre
BBC: British Broadcasting Corporation
BC: Before Christ
BCG: Bacillus Calmette Guerin (Anti-T.B. Vaccine)
BE: Bachelor of Engineering
BEL: Bharat Electronics Limited
bhp: brake horse power
BENELUX: (A short term for) Belgium, Netherlands and Luxembourg
BHEL: Bharat Heavy Electricals Ltd.
BIS: Bank of International Settlements; British Information Service
BO: Body Odour
BP: Blood Pressure; Before Present
BPE: Bureau of Public Enterprises
B. Pharm: Bachelor of Pharmacy
BSF: Border Security Force
B Th U: British Thermal Unit

C°: Centigrade
CA: Chartered Accountant
CADA: Command Area Development Agency, India
Cantab: Cantabrigian (of Cambridge University)
CARE: Co-operative for American Relief Everywhere
CASA: Church's Auxiliary for Social Action, India
CASTASIA: Conference on the Application of Science and Technology to the Development of ASIA
CBI: Central Bureau of Investigation, India
c&b: caught and bowled (a term in cricket)
CCI: Cricket Club of India
CDP: Community Development Programme
CDS: Compulsory Deposit Scheme
cf: confer (compare)/refer
C.G.S. Chief of the General Staff: Centimetre, Gram, Second
CGHS: Central Government Health Scheme
CIA: Criminal Investigation Agency; Central Intelligence Agency (USA)
C-in-C: Commander-in-Chief
CID: Criminal Investigation Department
cif: cost, insurance and freight
CIL: Coal India Limited
CIR: Canada India Reactor
CITU: Centre of Indian Trade Unions.
CJ: Chief Justice
CLRC: Central Land Reforms Committee
CMO: Chief Medical Officer
CO: Commanding Officer
CIWTC: Central Inland Water Transport Commission
Co: Company
C/o: Care of
COFEPOSA: Conservation of Foreign Exchange and Prevention of Smuggling Act
cod: cash on delivery
cp: compare
CORE: Congress of Racial Equality
CPI/CPM: Communist Party of India/Marxist
CR: Central Railway
CRP: Central Reserve Police
CSIR: Council of Scientific and Industrial Research,India
CSO: Central Statistical Organisation, India
Cwt: Hundredweight
CVC: Chief Vigilance Commissioner

DA: Dearness Allowance
DC: Deputy Commissioner/Direct Current (eelectricity) District of Columbia
D & C: Dilation and Curettage
DDT: Dichlor-diphenyl-trichloro-ethane
DGTD: Director General of Technical Development, India
DG: Dei Gratia (By the grace of God)
DIG: Deputy Inspector General
disco: discotheque (a place where one can dance to music played on records or discs)
DLO: Dead Letter Office (New name is RLO—Returned Letters Office)
D. Litt: Doctor of Literature
DM: District Magistrate
DMK: Dravida Munnetra Kazagham
DNA: Deoxy-ribose Nucleic Acid
DPI: Director of Public Instruction
DPSA: Deep Penetration Strike Aircraft
D. Sc: Doctor of Science
DV: Deo Volente (God Willing)
DVC: Damodar Valley Corporation
DUSU: Delhi University Students' Union

ECA: Economic Co-operation Administration
ECAFE: Economic Commission for Asia and Far East (Now ESCAP)
ECE/A/LA: Economic Commission for Europe/Africa/ Latin America
ECG: Electro Cardiogram
ECM: European Common Market
ECOSOC: Economic and Social Council (UN)
EEC: European Economic Community
EEG: Electro Encephalogram
eg: exempli gratia (for example)
E-in-C: Engineer-in-Chief
EMG: Electro Myogram
EMF: Electro-Motive Force
EMS: European Monetary System
E&OE: Errors and Omissions Excepted
EPLF: Eritrean People's Liberation Front
EPNS: Electroplated Nickel Silver
ERDA: Energy Research and Development Administration.
ERP: European Recovery Programme.
ESCAP: Economic and Social Commission for Asia and the Pacific.
ESI: Employees State Insurance.
ESP: Extra Sensory Perception.
etc: et ceteri or et cetera (and others/and so forth).
et seq: et sequentia (and what follows).
Ex-officio: By virtue of one's office.

FACT: Fertilisers and Chemicals Travancore Ltd.
FAO: Food and Agriculture Organisation.
FBI: Federal Bureau of Investigation.
FCI: Food Corporation of India, Fertilizer Corporation of India.
FERA: Foreign Exchange Regulation Act (India)
FICCI: Federation of Indian Chambers of Commerce and Industry.
FLS: Fellow of Linnaean Society.
FM: Field Marshal.
fob: free on board.
for: free on rail.
FRG: Federal Republic of Germany.
FRCP: Fellow of the Royal College of Physicians.
FRCS: Fellow of the Royal College of Surgeons.
FRS: Fellow of the Royal Society.

GATT: General Agreement on Tariffs and Trade.
GBS: George Bernard Shaw.
GDR: German Democratic Republic (East Germany).
GHQ: General Head Quarters.
GI: Government Issue: A term which is normally applied to the American soldiers.
GMT: Greenwich Mean Time.
GNP: Gross National Product.
GOC: General Officer Commanding.
GPO: General Post Office.
GRT: Gross Rated Tonnage.

HAL: Hindustan Aeronautics Limited.
HE: His or Her Excellency.
HEC: Heavy Engineering Company.
HEL: Heavy Electricals Limited.
HMI: Himalayan Mountaineering Institute.
HMT: Hindustan Machine Tools.
Hon: Honourable, Honorary.
hp: horse power.
HP: Harmonic Progression; Himachal Pradesh.
HQ: Head Quarters.
Hr: Hour.
HSD: High Speed Diesel.
HSL: Hindustan Steel Limited.
HWM: High Water Mark.
HUDCO: Housing and Urban Development Corporation.

IAMC: Indian Army Medical Corps.
IAA: International Airports Authority.
IA: Indian Airlines.
IAF: Indian Air Force.
IAEA: International Atomic Energy Agency.
IARI: Indian Agricultural Research Institute, Delhi.
IAS: Indian Administrative Service.
IAAS: Indian Audit and Accounts Service.
IATA: International Air Transport Association.
IBM: International Business Machines.
Ibid: Ibidem. (the same).
IBRD: International Bank of Reconstruction and Development.
ICAO: International Civil Aviation Organisation.
ICAR: Indian Council of Agricultural Research.
ICBM: Inter-Continental Ballistic Missile (developed by USSR).
ICCR: Indian Council of Cultural Relations.
ICICI: Industrial Credit Investment Corporation of India Ltd.
ICJ: International Court of Justice.
ICMR: Indian Council of Medical Research.
ICS: Indian Civil Service.
ICWA: Indian Council of World Affairs.
IDA: International Development Agency.
IDBI: Industrial Development Bank of India.
IDPL: Indian Drugs and Pharmaceuticals Limited.
ie: id est (that is).
IENS: Indian and Eastern Newspaper Society.
IFAD: International Fund for Agricultural Development.
IFC: Industrial Finance Corporation.
International Finance Corporation.
IFS: Indian Foreign Service.
IGY: International Geophysical Year.
IIPA: Indian Institute of Public Administration.
IISCO: Indian Iron and Steel Company.
IIT: Indian Institute of Technology.
ILO: International Labour Organisation.
IMCO: Inter-government Maritime Consultations Organisation.
IMF: International Monetary Fund.
IMS: Indian Medical Service.
IN: Indian Navy.
INA: Indian National Army.
in cog: in cognito. (unknown).
INS: Indian Naval Ship.
INSDC: Indian National Scientific Documentation Centre.
INTUC: Indian National Trade Union Congress.
INDIPEX: Indian International Philatelic Exhibition.
INSAT: Indian National Satellite.
INTELSAT: International Telecommunication Satellite.
INTERPOL: International Police.
infra dig: infra dignitatum (below status).
IOC: Indian Oil Coorporation.
IOU: I Owe You.
IPC: Indian Penal Code.
IPCL: Indian Petro-Chemicals Corporation Ltd.
IPS: Indian Police Service, Inter Press Service.
IQ: Intelligence Quotient.
iq: idem quod (the same as).
IQSY: International Quiet Sun Year (1 Jan. 64—31 Dec. 65).
IRA: Irish Republican Army.
IRC: International Red Cross.
IRBM: Intermediate Range Ballistic Missile.
IRRI: International Rice Research Institute.
IRO: International Refugee Organisation.
IRS: Indian Revenue Service.
IRTS: Indian Railway Traffic Service.
ISRO: Indian Space Research Organisation.
ISI: Indian Standards Institution.
IST: Indian Standard Time.
ISSP: Indian Scientific Satellite Project.
ITBF: Indo-Tibetan Border Force.
ITI: Indian Telephone Industries; Industrial Training Institute.

ITO: International Trade Organisation; Income-Tax Officer.
ITU: International Telecommunication Union.
ITUC: Indian Trade Union Congress.
ITY: International Tourist Year.
IUCD: Intra-Uterine Contraceptive Device.
IUCN: International Union for Conservation of Nature and Natural Resources.

JAL: Japan Air Lines.
JCO: Junior Commissioned Officer.
JP: Justice of the Peace.

KANU: Kenya African National Union.
KG: Knight of the Garter; Kindergarten.
KGB: Komitet Gosudarstvennony Bizo Pasnosti (Russian Secret Police).
KKK: Ku Klux Klan (U.S. Secret Society—Anti-negro, Anti-Jewish).
KMT: Kuomintang (Chinese National Party).

LASER: Light Amplification by Stimulated Emission of Radiation.
LD: Lok Dal.
Lib: Liberation.
Litt.D: Doctor of Literature.
LIC: Life Insurance Corporation (of India).
LL.B.: Bachelor of Laws.
LL.D: Doctor of Laws.
LL.M.: Master of Laws.
loc cit: loco citato (at the place quoted).
LPG: Liquefied Petroleum Gas.
Lt: Lieutenant.
Lt. Col.: Lieutenant Colonel.
LSD: Lysergic acid di-ethylamide.

M: Monsieur (Mister).
M.A: Magister Artium (Master of Arts).
MASER: Micro-wave Amplification by Stimulated Emission of Radiation.
MBA: Master of Business Administration.
MBBS: Bachelor of Medicine and Bachelor of Surgery.
MBE: Member of the British Empire.
MC: Military Cross; Member of Council; Municipal Committee; Municipal Commissioner; Medical Certificate.
MCC: Marylebone Cricket Club.
M.D: Doctor of Medicine.
Mlle: Mademoiselle (Miss).
Mlles: Mesdemoiselles (Plural of Miss).
Mme: Madam (Mrs.).
Mmes: Mesdames (Plural of Mrs.).
MI: Military Intelligence.
MISA: Maintenance of Internal Security Act.
MIRV: Multiple Independently Targetable Re-entry Vehicle.
Misc: Miscellaneous.
MIT: Massachusetts Institute of Technology, USA.
MKS: Metre Kilogram Second (System).
MLA: Member of Legislative Assembly.
MLC: Member of Legislative Council.
MLF: Multilateral Force.
MMTC: Minerals and Metals Trading Corporation.
MNC: Multi-National Corporation.
MP: Member of Parliament; Madhya Pradesh.
MPLA: People's Movement for Liberation of Angola.
mph: miles per hour.
MRA: Moral Re-Armament.
MRCP: Member of the Royal College of Physicians.
MRCS: Member of the Royal College of Surgeons.
MRTPC: Monopoly & Restrictive Trade Practices Commission.
M.Sc.: Master of Science.
MS/MSS: Manuscript/Manuscripts.
MVC: Maha Vir Chakra.

NABARD: National Bank for Agriculture and Rural Development.
NAEP: National Adult Education Programme.
NASA: National Aeronautics and Space Administration (U.S.A.).
NATO: North Atlantic Treaty Organisation.
NAYE: National Alliance of Young Entrepreneurs.
NB: Nota Bene (note well).
NCC: National Cadet Corps.
NCDC: National Coal Development Corporation.
NCAER: National Council for Applied Economics Research.
NCST: National Committee on Science & Technology.
NCERT: National Council of Educational Research and Training.
NCO: Non-Commissioned Officer.
NDA: National Defence Academy.
NDF: National Defence Fund.
NDC: National Development Council.
NDS: National Discipline Scheme.
NEFA: North-East Frontier Agency.
NFR: North-East Frontier Railway.
NER: North Eastern Railway.
NFIR: National Federation of Indian Railwaymen.
NIESBUD: National Institute of Entrepreneurship and Small Business Development (India).
NLTA: National Lawn Tennis Association.
NMDC: National Mineral Development Corporation.
non seq: non sequitur (it does not follow).
NOC: No Objection Certificate.
NP: Notary Public.
NPT: Nuclear Non-Proliferation Treaty.
NPC: National Productivity Council (India).
N and Q: Notes and Queries.
NSC: National Service Corps.
NSO: National Sports Organisation.
NSUI: National Students Union of India.
NTP: Normal Temperature and Pressure.
NR: Northern Railway.
NVF: National Volunteer Force.

O & M: Organisation and Methods.
OAS: Organisation for American States.
OAU: Organisation of African Unity. (It was set up in May, 1963).
OBE: Officer (of the Order of the) British Empire.
OC: Officer Commanding.

OCS: Overseas Communication Service.
OECD: Organisation for Economic Co-operation and Development.
OED: Oxford English Dictionary.
OEEC: Organisation for European Economic Co-operation.
OGL: Open General Licence.
OIL: Oil India Limited.
OK: All Correct (Slang).
OAPEC: Organisation of Arab Petroleum Exporting Countries.
OPEC: Organisation of Petroleum Exporting Countries.
OTS: Officers' Training School.
OXFAM: Oxford Committee for Famine Relief.
Oxon: Oxoniensis (of Oxford University).
OIGS: On India Government Service.
ONGC: Oil and Natural Gas Commission.
op cit: opero citato (in the work cited).

PA: Personal Assistant; Press Association.
PAC: Provincial Armed Constabulary.
PDA: Preventive Detention Act.
PAYE: Pay As You Earn.
pc: per centum; post card.
PEC: Project and Equipment Corporation.
PEN: (International Club of) Poets, Playwrights, Essayists, Editors and Novelists.
Perks: Perquisites of Office.
Per pro: Per procurationem (By the agency of)
Ph.D: Doctor of Philosophy.
PIB: Press Information Bureau.
PIN: Postal Index Number.
PKI: Partai Kommunis Indonesia (Communist Party of Indonesia).
PL480: Public Law 480 (Enactment in US under which foreign aid is given).
PM: Post Meridiem; Prime Minister.
PMG: Post Master General.
P&O: Peninsular and Oriental (Steamship) Co.
POW: Prisoner of War.
PRD: Prantiya Raksha Dal.
PRG: Provisional Revolutionary Government.
Pro-tem: Pro tempore (for the time being).
PS: Post Scriptum (written after); Private Secretary, Personal Secretary.
PPS: Post Post Scriptum (additional post script).
PSP: Praja Socialist Party.
PT: Physical Training.
PTI: Press Trust of India.
PTO: Please Turn Over.
PVC: Poly Vinyl Chloride; Param Vir Chakra.
PVSM: Param Vishisht Seva Medal.
PWD: Public Works Department.

Q: Queue.
QED: Quod Erat Demonstrandum (that which was to be demonstrated).
QMG: Quarter Master General.
qv: quod vide (which see).

RADAR: Radio Detecting and Ranging.
R&D: Research and Development.
RAW: Research & Analysis Wing.
RBI: Reserve Bank of India.
RCC: Reinforced Cement Concrete.
rtd: refer to drawer.
RIP: Requiescat in pace (May he or she rest in peace).
RITES: Rail India Technical & Economic Services.
RLO: Returned Letters Office.
RMS: Railway Mail Service.
RN: Royal Navy.
RNA: Ribo Nucleic Acid.
RNAC: Royal Nepal Airlines Corporation.
RPM: Revolutions Per Minute.
RRC: Reactor Research Centre.
RSVP: Respondez Sil vous plait (Reply if you please).
RSS: Rashtriya Swayam Sewak Sangh.

SAIL: Steel Authority of India.
SALT: Strategic Arms Limitation Talks.
SAM: Surface to Air Missile.
SAS: Small Astronomy Satellite.
SC: Supreme Court; Security Council.
SCI: Shipping Corporation of India.
SCRA: Special Class Railway Apprentices.
SDO: Sub-Divisional Officer.
SDR: Special Drawing Rights.
SEATO: South-East Asia Treaty Organisation.
SITE: Satellite Instructional Television Experiment.
SHAPE: Supreme Headquarters of Allied Powers in Europe.
SLFP: Sri Lanka Freedom Party.
SLV: Satellite Launch Vehicle.
SP: Superintendent of Police.
SPCA: Society for the Prevention of Cruelty to Animals.
SPCK: Society for the Promotion of Christian Knowledge.
SR: Southern Railway.
SS: Steamship.
SSB: Service Selection Board.
SST: Supersonic Transport.
STARS: Satellite Tracking And Ranging Station.
STC: State Trading Corporation.
STD: Subscriber Trunk Dialling; Sexually Transmitted Diseases.
SUNFED: Special United Nations Fund for Economic Development.
SVP: Saturated Vapour Pressure.

TA: Territorial Army; Travelling Allowance.
TB: Tuberculosis.
TC: Trusteeship Council (U.N. Organ).
TDA: Trade Development Authority.
TELCO: Tata Engineering and Locomotive Company.
TISCO: Tata Iron and Steel Company
TMO: Telegraphic Money Order.
TNT: Trinitrotoluene.
TERLS: Thumba Equatorial Rocket Launching Station
TRACT: Transportable Remote Area Communications Terminal.
TTE: Travelling Ticket Examiner
TVA: Tennessee Valley Authority

TULF: Tamil United Liberation Front.
TWA: Trans-World Airlines.
UGC: University Grants Commission.
UK: United Kingdom.
UNAEC: United Nations Atomic Energy Commission.
UNCIP: United Nations Commission for India and Pakistan.
UNCSTD: United Nations Conference on Science & Technology for Development.
UNEP: United Nations Environment Programme.
UNCTAD: United Nations Conference on Trade and Development.
UNEF: United Nations Emergency Force (UAR).
UNESCO: United Nations Educational, Scientific and Cultural Organisation.
UNI: United News of India.
UNICEF: United Nations International Children's Emergency Fund, now known only as 'United Nations Childrens Fund'.
UNIDO: United Nations Industrial Development Organisation.
UNIPOM: United Nations India-Pakistan Observation Mission.
UNRRA: United Nations Relief and Rehabilitation Administration.
UP: Uttar Pradesh.
UPSC: Union Public Service Commission.
USA: United States of America.
USAID: United States Agency for International Development.
USI: United States of Indonesia.
USSR: Union of Soviet Socialist Republics.
VAT: Value Added Tax.
VC: Vice-Chancellor, Victoria Cross.
VD: Venereal Disease (see STD).
VCO: Viceroy's Commissioned Officer.
Vr.C: Vir Chakra.
VIP: Very Important Person.
VPP: Value Payable Post.
VVF: Village Volunteer Force (Organised in India since January 1963).
WAY: World Assembly of Youth.
WFTU: World Federation of Trade Unions.
WHO: World Health Organisation.
WMO: World Meteorological Organisation.
WWF: World Wildlife Fund, now renamed Worldwide Fund for Nature.
Xmas: Christmas.
YMCA: Young Men's Christian Association.
YWCA: Young Women's Christian Association.
ZETA: Zero Energy Thermo-nuclear Assembly or Apparatus.
ZIP: Zonal Improvement Plan.

NOBEL PRIZE AND HONOURS

The 1987 Nobel Prize for **Peace**, the most coveted of them all, was won by Mr. Oscar Arias Sanchez, 46, President of Costa Rica. This was in recognition of his efforts to bring peace to Central America long torn by strife and civil war. His efforts resulted in an agreement signed by the Presidents of Costa Rica, Guatemala, El Salvador, Honduras and Nicaragua on August 7, 1987.

The other award-winners:

Physics: Dr. K. Alex Muller, 60, of Switzerland and Dr. George Bednorz, 37, of West Germany for their discovery of new superconducting materials at the IBN Zurich Research Laboratory in Switzerland.

Chemistry: Dr. Donald J. Cram and Dr. Chharles J. Pedersen both of the U.S. and Jean Marie Lehu of France for their work in the sytheses of molecules that can mimic important biological processes.

Medicine: Dr. Susumu Tonegawa, 48, of Japan now researcher at the Massachusetts Institute of Technology in the US, for his discoveries explaining the structure of the body's immune defence.

Economics: Robert M. Solow, 63, of the Massachusetts Institute of Technology, U.S., for his contribution to the theory of economic growth.

Literature: Joseph Brodsky, 47, the Soviet Poet living in the U.S. for his works with "great breadth in time and space".

Following is the full list of Nobel Prize winners:

Peace

1901 Jean H. Dunant (Switzerland) & Frederick Passy (France)
1902 Elie Ducommun and A. Gobal (Switzerland)
1903 Sir W.R. Cremer (England)
1904 Institute of International Law (Belgium)
1905 Bertha Von Suttner (Austria)
1906 L. Roosevelt (USA)
1907 E.T. Moneta (Italy) and Louis Renault (France)
1908 K.P. Arnoldson (Sweden)

1909 August M.F. & A. Beernaert (Belgium)
1910 International Peace Bureau (Switzerland)
1911 T.M.C. Asser (Holland) & A.H. Fried (Austria)
1912 Elihu Root (USA)
1913 H. La Fontaine (Belgium)
1914-16 No Award
1917 International Red Cross (Geneva)
1918 No Award
1919 Woodrow Wilson (USA)
1920 Leon Bourgeois (France)
1921 K.H. Branting (Sweden) & Christian L. Lange (Norway)
1922 Fridtjof Nansen (Norway)
1923-24 No Award
1925 Charles G. Dawes (USA) & Sir J.A. Chamberlain (England)
1926 Aristide Briand (France) and G. Stresemann (Germany)
1927 F. Buisson (France) and Ludwig Quidde (Germany)
1928 No Award
1929 Frank B. Kellogg (USA)
1930 Lars O.J. Soderblom (Sweden)
1931 Jane Addams and Nicholas M. Butler (USA)
1932 No Award
1933 Sir Norman Angell (England)
1934 A. Henderson (England)
1935 Carl Von Ossietzky (Germany)
1936 C. de S. Lamas (Argentina)
1937 Viscount Cecil (England)
1938 Nansen International Office for Refugees (Geneva)
1939-43 No Award
1944 International Committee of Red Cross (Switzerland)
1945 Cordell Hull (USA)
1946 Emily G. Balch and John R. Mott (USA)
1947 American Friends Service Committee (USA) & Br. Society of Friends Service Council (England)
1948 No Award
1949 Lord John Boyd-Orr (England)
1950 Ralph J. Bunche (USA)
1951 Leon Jouhaux (France)
1952 Albert Schweitzer (France)

The Price of The Prize

Alfred Nobel, the wealthy industrialist who invented dynamite, scandalised his Swedish countrymen when he created the Nobel Prizes.

Swedes found out about the prizes only when they read his will after his death in 1896. In the will, he donated the annual income from his fortune—worth about $ 100 million today—to support the awards, and his critics charged he had been unpatriotic in not reserving the prizes for Sweden, then a poor agricultural country.

Nobel had ordered that "the most worthy shall receive the prize, whether he is Scandinavian or not."

Nobel's relatives contested his home-made will for three years in a futile attempt to get more than the 1 million kronor he left them. That money would be worth about $ 2.5 million today.

Only 4 per cent of the 530 prizes distributed since 1901 have been awarded to Swedes, but Sweden is the major winner, notes Mr. Stig Ramel, the head of the Nobel Foundation, which was established in 1900 to administer the legacy.

The 1987 winners get the equivalent of $ 3,43,000 (Rs. 42.87 lakhs approx.) per category, about $ 28,000 more than previous year's laureates, "more than enough to adjust for inflation", said Mr. Ramel.

1953 George C. Marshall (USA)
1954 Office of the U.N. High Commissioner for Refugees
1955-56 No Award
1957 Lester B. Pearson (Canada)
1958 Father G. Henri Pire (Belgium)
1959 Philip J. Noel-Baker (England)
1960 A.J. Luthuli (South Africa)
1961 Dag Hammarskjold (Sweden)
1962 Linus C. Pauling (USA)
1963 International Red Cross Committee & Red Cross League (Switzerland)
1964 Dr. Martin Luther King (USA)
1965 United Nations Children's Fund
1966-67 No Award
1968 Rene Cassin (France)
1969 International Labour Organisation
1970 Norman Ernest Borlaug (USA)
1971 Willy Brandt (Germany)
1972 No Award
1973 Henry Kissinger (USA) & Le Duc Tho (Vietnam) (Tho rejected the prize)
1974 Eisaka Sato (Former P.M., Japan), Sean MacBirde (Ireland), UN Commissioner for S.W. Africa, Namibia
1975 Andrie Sakharov (USSR)
1976 Betty Williams, Mairead Corrigan and Claron Mckeown (Northern Ireland)
1977 Amnesty International
1978 Anwar Sadat (Egypt) & Menacham Begin (Israel)
1979 Mother Teresa (India)
1980 Adolfo Peren Esquivel (Argentina)
1981 UN High Commissioner for Refugees
1982 Alva Myrdal (Sweden) & Garcia Robles (Mexico)
1983 Lech Walesa (Poland)
1984 Bishop Desmond Tutu (South Africa)
1985 International Physicians for Prevention of Nuclear War (USA)
1986 Elie Wisel (USA)

Physics

1901 W.K. Roentgen (Germany)
1902 H.A. Lorentz and P. Zeeman (Holland)
1903 A.H. Becquerel, Pierre & Marie Curie (France)
1904 Lord Rayleigh (England)
1905 Philipp Lenard (Germany)
1906 J.J. Thomson (England)
1907 A.A. Michelson (USA)
1908 G. Lippmann (France)
1909 G. Marconi (Italy) and F. Braun (Germany)
1910 J.D. Van der Waals (Holland)
1911 W. Wien (Germany)
1912 Gustaf Dalen (Sweden)
1913 H. Kamerlingh-Onnes (Netherlands)
1914 M. von Laue (Germany)
1915 W.H. Bragg and W.L. Bragg (England)
1916 No Award
1917 C.G. Barkla (England)
1918 Max von Planck (Germany)
1919 J. Stark (Germany)
1920 C.E. Guillaume (Switzerland)
1921 A. Einstein (Germany)
1922 Niels Bohr (Denmark)
1923 R.A. Millikan (USA)
1924 Karli Siegbahn (Sweden)
1925 James Franck & Gustav Hertz (Germany)
1926 Jean B. Perrin (France)
1927 Arthur Compton (USA) & Charles T.R. Wilson (England)
1928 O.W. Richardons (England)
1929 L.V. de Broglie (France)
1930 C.V. Raman (India)
1931 No Award
1932 W. Heisenberg (Germany)
1933 Paul A.M Dirac (England) & Erwin Schroedinger (Austria)
1934 No Award
1935 J. Chadwick (England)
1936 V.F. Hess (Austria) and C.D. Anderson (USA)
1937 C.J. Davisson (USA) and G.P. Thomson (England)
1938 E. Fermi (Italy)
1939 E.O. Lawrence (USA)
1940-42 No Award
1943 Otto Stern (USA)
1944 Isidor I. Rabi (USA)
1945 W. Pauli (Austria)
1946 P.W. Bridgman (USA)
1947 Sir E. Appleton (England)
1948 P.M.S. Blackett (England)
1949 Hideki Yukawa (Japan)
1950 C.F. Powell (England)
1951 Sir John Cockcroft (England) and E.T.S. Walton (Ireland)
1952 E.M. Purcell and Felix Bloch (USA)
1953 Fritz Zernike (Netherlands)
1954 S. Max Born (England) and Walther Bothe (Geermany)
1955 Willis E. Lamb and Ploykarp Kusch (USA)
1956 Walter H. Brattain, William Shockley and John Bardeen (USA)
1957 Tsung Dao Lee and Chen Ning Yang

Javed Husain Prize

UNESCO has awarded the firstever Javed Husain Prize for Young Scientists to Dr. Jan Balzarini of Belgium and Dr. Luis Herrera Estrella of Mexico.

This biennial award instituted in 1986 is given to a scientist below the age of 35 irrespective of nationality, race, sex, language, profession, ideology or religion.

The award is named after its donor, the Indian Physicist Dr. Javed Husain who has held Professorships in the US and Saudi Arabia and is presently Professor of Physics, Aligarh Muslim University.

Dr. Javed Husain is also the Consultant Editor, (Science) of ***Manorama Year Book.***

The 1987 UNESCO Science Prize has been awarded to Prof. Yuan Longping of China.

1987 Carlos J. Finlay Prize has been given to Dr. Hellio Gelli Pereira of Brazil and Prof. Peire Reichard of Sweden.

(USA) (b. China)
1958 Pavel A. Cerenkov, Ilya M. Frank and Igor E. Tamm (USSR)
1959 Emilio Segre and Owen Chamberlain (USA)
1960 Donald A. Glaser (USA)
1961 Robert Hofstadter (USA) & R.L. Mossabaur (Germany)
1962 Lev. Dr. Landau (USSR)
1963 Eugene P. Wigner (USA), Maria Goeppert—Mayer (USA) & J. Hans D. Jenen (Germany)
1964 Charles H. Towns (USA), Nikolai G. Basov & A.M. Prokhorov (USSR)
1965 Shinichero Tomonaga (Japan), Julian Schwinger & Richard P. Feynman (USA)
1966 Alfred Kastler (France)
1967 Hans A. Bethe (W. Germany)
1968 Luis W. Alvarez (USA)
1969 Murray Gell-Mann (USA)
1970 Louis Neel (France) and Hannes Alfver (Sweden)
1971 Denis Gabor (Britain)
1972 John Bardeen, John Schneffer, Leon Cooper (all USA)
1973 Leo Esaki (Japan), Ivar Giaevar (USA), Brian D. Josephson (UK)
1974 Martin Ryle (UK) and Antony Hewish (UK)
1975 James Rainwater (USA), Age Bohr (Denmark) and Ben Mottleson (Denmark)
1976 Burton Richter (USA), Samuel C.C. Teng (USA)
1977 Philip W. Anderson (USA), Sir Neville Mott (England), John H. Van Vleck (USA)
1978 1. Pyotr Leontevitch Kapitsa (USSR) (Half the Prize amount) 2. Arno A. Penzias (USA) 3. Robert W. Wilson (USA)
1979 Sheldon S. Glashow (USA), Steven Weinberg (USA) & Abdus Salam (Pakistan)
1980 James W. Cronin and Val L. Fitch (USA)
1981 Nicolaas Blombergen (Holland), Arthur Shawlow (USA) & Kai Siegbahn (Sweden)
1982 Kenneth G. Wilson (USA)
1983 S. Chandrasekhar (India-born Amercian Professor) and William Fowler (USA)
1984 Carlo Rubbia, Simon Van Der Meer (Switzerland)
1985 Prof. Klaus Bon Klitzing (F.R.G.)
1986 Ernst Ruska (F.R.G.), Gerd Binning (F.R.G.) and Henrich Rohrer (Switzerland)

Chemistry

1901 J.H. Vant Hoff (Holland)
1902 Emil H. Fischer (Germany)
1903 S.A. Arrhenius (Sweden)
1904 Sir W. Ramsay (England)
1905 Adolf von Baeyer (Germany)
1906 Henri Moissan (France)
1907 E. Buchner (Germany)
1908 Ernest Rutherford (England)
1909 Wilhelm Ostwald (Germany)
1910 Otto Wallach (Germany)
1911 Marie Curie (France)
1912 F.A.V. Grignard and P. Sabatier (France)
1913 Alfred Werner (Switzerland)
1914 T.W. Richards (England)
1915 R. Willstatter (Germany)
1916-17 No Award
1918 Fritz Haber (Germany)

1919 No Award
1920 Walther Nernst (Germany)
1921 Frederic Soddy (England)
1922 F.W. Aston (England)
1923 Fritz Pregl (Australia)
1924 No Award
1925 R.A. Zsigmondy (Germany)
1926 T. Svedberg (Sweden)
1927 H. Wieland (Germany)
1928 Adolf Windaus (Germany)
1929 A. Harden (England) and H. von Euler Chelpin (Sweden)
1930 Hans Fischer (Germany)
1931 Kal Bosch and Friedrich Bergius (Germany)
1932 Irving Langmuir (USA)
1933 No Award
1934 Harold C. Urey (USA)
1935 Frederick & Irene Joliot-Curie (France)
1936 Peter J.W. Debye (Germany)
1937 Walter N. Haworth (England) and Paul Karrer (Switzerland)
1938 R. Kuhn (Germany)—declined
1939 Adolf F. J. Butenandt (Germany)—declined—and Leopold Ruzicka (Switzerland)
1940-42 No Award
1943 G.H. De Heves (Hungary)
1944 Otto Hahn (Germany)
1945 Arturi I. Virtanen (Finland)
1946 J.B. Sumner, W.M. Stanley and J.H. Northrop (USA)
1947 Sir Roberto Robinson (England)
1948 Arne W.K. Tiselius (Sweden)
1949 William F. Giauque (USA)
1950 Otto Diels & Kurt Alder (Germany)
1951 Edward M. McMillan & Glen T. Seaborg (USA)
1952 Archer J.P. Martin & Richard L.M. Synge (England)
1953 Herman Staudinger (Germany)
1954 Linus C. Pauling (USA)
1955 Cincent du Vigneaud (USA)
1956 Sir Cyril Hinshelwood (England) Nikolai N. Semenov (USSR)
1957 Sir Alexander Todd (England)
1958 Frederick Sanger (England)
1959 Jaroslav Heyrovsky (Czechoslovakia)
1960 Williard F. Libby (USA)
1961 Melvin Calvin (USA)
1962 Max F. Perutz & C. Kendrew (England)
1963 Karl Ziegler (W. Germany) & Giulio Natta (Italy)
1964 Dorothy C. Hodgkin (England)
1965 Robert B. Woodward (USA)
1966 Robert S. Mulliken (USA)
1967 Maanfred Eigen (East Germany), Ronald G.W. Norrish (UK) and George Porter (UK)
1968 Lars Onsager (USA)
1969 Derek H.R. Barton (England) and Odd Hassel (Norway)
1970 Luis F. Leloir (Argentina)
1971 Gerhard Herzberg (Canada)
1972 Christian B. Anfinsen, Stanford Moore & William H. Stein (USA)
1973 Ernst Otto Fischer (W. Germany), Geoffrey Wilkinson (UK)
1974 Paul J. Flory (USA)
1975 John Warcup Cornforth (Britain) Vladimir Prelog (Switzerland)
1976 William N. Lipscomb (USA)
1977 Ilya Prigogine (Belgium)
1978 Peter Mitchell (Britain)
1979 Herbert C. Brown (USA) & George Witting (W. Germany)
1980 Paul Berg (USA), Walter Gilbert (USA) & Frederick Sanger (Britain)
1981 Kenichi Fukui (Japan) & Roals Hoffmann (USA)
1982 Aaron Klug (Britain)
1983 Prof. Henry Taute (USA)
1984 R. Bruce (USA)
1985 Herbert A. Hauptman and Jerome Karle (USA)
1986 Dudley R. Herschbach (USA), John Charles Polanyi (Canada) and Yuan Tesh Ltd Lee (Taiwan)

Medicine & Physiology

1901 E.A. Von Behring (Germany)
1902 Sir Ronald Ross (England)
1903 N.R. Finsen (Denmark)
1904 Ivan P. Pavlov (Russia)
1905 Robert Koch (Germany)
1906 S. Ramon Cajal (Spain) and Camill Golgi (Italy)
1907 C.L.A. Laveran (France)
1908 Paul Ehrlich (Germany) & E. Metchnikoff (France)
1909 T. Kocher (Sweden)
1910 A. Kossel (Germany)
1911 A. Gullstrand (Sweden)
1912 Alexis Carrel (USA)
1913 Charles Richet (France)
1914 R. Barany (Austria)
1915-18 No Award
1919 Dr. Bordet (Belgium)

1920 August Krogh (Denmark)
1921 No Award
1922 A.V. Hill (England) and Otto Meyerhof (Germany)
1923 Frederic G. Banting and J.J.R. MacLeod (Canada)
1924 W. Einthoven (Holland)
1925 No Award
1926 Johannes Fibiger (Denmark)
1927 J. Wanger-Jauregg (Austria)
1928 Charles Nicolle (France)
1929 Sir F.G. Hopkins (England) and C. Eijkman (Holland)
1930 Karl Landsteiner (USA)
1931 Otto H. Warburg (Germany)
1932 Sir C.S. Sherrington & E.D. Adrian (England)
1933 T.H. Morgan (USA)
1934 G.R. Minot, W.P. Murphy & G.H. Whipple (USA)
1935 Hans Spemann (Germany)
1936 Sir Henry H. Dale (England) and Otto Loewi (Austria)
1937 A Szent-Gyorgyi (Hungary)
1938 C. Heymans (Belgium)
1939 G. Domagk (Germany)—declined
1940-42 No Award
1943 C.P. Henrik Dam (Denmark) and Edward A. Doisy (USA)
1944 Joseph Erlanger and Herbert Gasser (USA)
1945 Sir Alexander Fleming, Sir Howard W. Florey (England) and E.B. Chain (Germany)
1946 Herman J. Muller (USA)
1947 Carl F. and Gerty T. Cori (USA) & Bernardo A. Houssay (Argentina)
1948 Paul Mueller (Switzerland)
1949 Walter R. Hess (Switzerland) & Antonio C.A.F. Moniz (Portugal)
1950 Edward C. Kendall, Philip S. Hench (USA) & t. Reichstein (Switzerland)
1951 Max Theiler (USA-b Africa)
1952 S.A. Waksman (USA)
1953 Hans A. Krebs (England) & Frits A. Lipmann (USA)
1954 J.F. Enders, F.C. Robbins & T.H. Weler (USA)
1955 A.H.T. Theorell (Sweden)
1956 Andre F. Cournand, D.W. Richards (USA) & Dr. W. Forssmann (Germany)
1957 Daniel Bovet (Italy)
1958 G.W. Beadle, Joshua Lederberg & E.L. Tatum (USA)
1959 Servo Ochoa & Arthur Kornburg (USA)
1960 Sir M. Burnet (Australia) & Peter B. Medawar (England)
1961 George von Bekesy (USA)
1962 Francis H.C. Circk (England), Maurice H.F. Wilkins (England) and James D. Watson (USA)
1963 Sir John C. Eccles (Australia), Andrew F. Huxley & A.L. Hodgkin (England)
1964 Konard E. Bloch (USA) & Feodor Lynen (W. Germany)
1965 Francois Jacob, Andre Lwoff & Jacques Monod (France)
1966 Francis P. Rous & Charles B. Huggins (USA)
1967 Ranger Granit (Sweden), Haldon Keffer Hartline and George Wald (USA)
1968 Dr. Hargovind Khorana (USA) (b. India), Robert W. Holley & Marshall W. Nirenberg (USA)
1969 Dr. Max Delbruck (USA), Dr. Alfred D. Hershey (USA), Dr. Salvador Luria (USA)
1970 Sir Bernard Katz (England), Dr. Ulf von Euler (Sweden), Dr. Julis Axelrod (USA)
1971 Dr. Eare Wilbur Sutherland (USA)
1972 Gerald Edelman (USA), Rodney Porter (Britain)
1973 Karl Von Frisch (W. Germany), Zacharias Lorenz (Austria), Nicholas Tinbergen (Netherlands)
1974 Albert Claude (Luxembourg), Geroge E. Palade (Hungary), Christian de. Duve (Belgium)
1975 David Baltimore (USA), Renato Dulbecco (Britain), Howard M. Temin (USA)
1976 Baruch S. Blumberg (USA), D. Carleton Gajdusek (USA)
1977* Rosalyn S. Yalow (USA), Andrew V. Schally (USA) and Roger Gullemin
1978 Werner Arber (Switzerland), Daniel Nathans (USA) and Hamilton O. Smith (USA)
1979 Godfrey Hounsfield (Britain) Allan McCormach (USA)
1980 Buruf Benacerraf (USA), George Snell (USA), Jean Dausset (France)
1981 Roger Sperry, David Hubel (USA) & Torsten Wiesel (Sweden)
1982 Sune Bergstroem, Bengt Samuelsson (Sweden) and John R. Vane (Britain)

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* Half the Prize amount went to Rosalyn Yalow, who incidentally, is the 6th woman to receive a Nobel Prize in the sciences. the other half was shared equally by Roger Gullemin and Andrew Schally.

1983 Dr. Barbara McClintock (England)
1984 Dr. Niels Jerne (Denmark),Dr. George Koehler (W. Germany), Dr. Cesar Milstein (Argentina)
1985 Michael S. Brown and Joseph Goldstein (USA)
1986 Stanley Cohen and Rita Levi-Mondalcini (USA)

Economics

1969 Ragnar Frisch (Norway) & Jan Tinbergen (Holland)
1970 Dr. Paul A. Samuelson (USA)
1971 Simon Kuznets (USA)
1972 John R. Hicks (Britain) & Kenneth J. Arrow (USA)
1973 Wassily Leontief (USA)
1974 Gunnar Myrdal (Sweden) & Friedrich A Von Hayek (Austria)
1975 Leonid V. Kantarovich (USSR), Tjalling C. Koopmans (USA)
1976 Milton Freidman (USA)
1977 Berti Ohlin (Sweden) & James E. Meade (England)
1978 Herbert A. Simon (USA)
1979 Theodore Shultze & Sir Arthur Lewis (USA)
1980 Lawrence Klein (USA)
1981 James Tobin (USA)
1982 George Stigler (USA)
1983 Gerard Debreu (USA)
1984 Sir Richard Stone (Britain)
1985 Franco Modigilani (USA)
1986 James McGill Buchanan (USA)

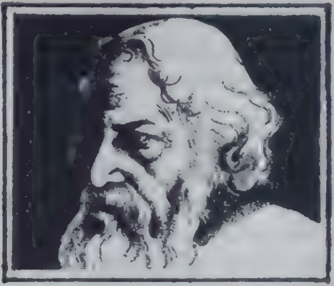
Literature

1901 Rene F.A. Sully-Prudhomme (France)
1902 T. Mommsen (Germany)
1903 B. Bjornson (Norway)
1904 F. Mistral (France) and Jose Echegaray (Spain)
1905 H. Sienkiewicz (Poland)
1906 Giosue Carducci (Italy)
1907 Rudyard Kipling (England)
1908 R. Eucken (Germany)
1909 Selma Lagerlof (Sweden)
1910 Paul J.L. Heyse (Germany)
1911 M. Maeterlinck (Belgium)
1912 G. Hauptmann (Germany)
1913 Rabindranath Tagore (India)
1914 No Award
1915 Romain Rolland (France)
1916 V. Heidenstam (Sweden)
1917 Karl Gjellerup and H. Pontoppidan (Denmark)
1918 No Award
1919 Carl F.G. Spitteler (Switzerland)
1920 Knut Hamsun (Norway)
1921 Anatole France (France)
1922 J. Benavente Martinez (Spain)
1923 W.B. Yeats (Ireland)
1924 L.S. Reymont (Poland)
1925 G.B. Shaw (England)
1926 Grazia Deledda (Italy)
1927 Henri Bergson (France)
1928 Sigrid Undset (Norway)
1929 Thomas Mann (Germany)
1930 Sinclair Lewis (USA)
1931 Erik A. Karlfeldt (Sweden)
1932 John Galsworthy (England)
1933 Ivan G. Bunin (USSR)
1934 Luigi Pirandello (Italy)
1935 No Award
1936 Eugene O Neil (USA)
1937 R.M. du Gard (France)
1938 Pearl S. Buck (USA)
1939 F.E. Sillanpaa (Finland)
1940-43 No Award
1944 J.V. Jensen (Denmark)
1945 Gabriela Mistral (Chile)
1946 Hermann Hesse (Switzerland)
1947 Andre P.G. Gide (France)
1948 T.S. Eliot (England)
1949 William Faulkner (USA)
1950 Bertrand A.W. Ressell (England)
1951 Par Lagerkvist (Sweden)
1952 Francois Mauriac (France)
1953 Sir Winston S. Churchill (England)
1954 Ernest Hemingway (USA)
1955 Halldor K. Laxness (Ireland)
1956 Juan R. Jiminez (Spain)
1957 Albert Camus (France)
1958 Boris L. Pasternak (USSR)
1959 Salvatore Quasimodo (Italy)
1960 Saint John Perse (France)
1961 Ivo Andric (Yougoslavia)
1962 John Steinbeck (USA)
1963 Giorgos Seferis (Greece)
1964 Jean-Paul Sartre (France) (Satre rejected the prize)
1965 Mikhail Sholokhov (USSR)
1966 Samuel J. Agnon (Israel) & Nelly Sachs (Sweden)
1967 Miguel Angel Asturias (Guatemala)
1968 Yasunari Kawabata (Japan)
1969 Samuel Beckett (Ireland)
1970 Alexander Solzhenitsyn (USSR)
1971 Pablo Neruda (Chile)

Indians Who Won the Prize

'Where the mind is without fear
and the head is held high;
Where the world has not been broken up
into fragments by narrow domestic walls....
....Into that heaven of freedom, my Father,
let my country awake."

—Gitanjali



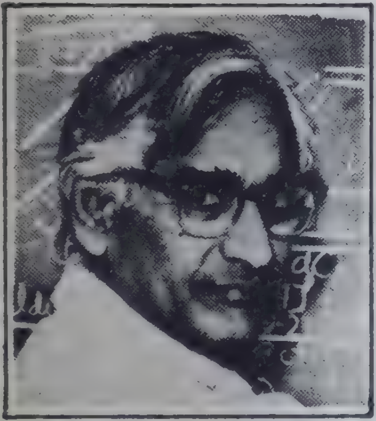
So sang poet Rabindranath Tagore whose 125th birth anniversary was celebrated in India and abroad in 1986.

It was Tagore who first won the Nobel Prize for India through his inimitable strains of poetic genius.

Here is a thumb-nail sketch of all the Indians who won Nobel Prize:

Rabindranath Tagore (1861-1941): Author and educator. Founded Shantiniketan (1901) which later became Vishwabharati University. Tagore wrote love lyrics. 'Gitanjali' and philosophical 'Sadhana' are important works. India's national anthem was written by Tagore. Awarded Nobel Prize for literature in 1913.

C. V. Raman (1888-1970): Physicist. Raman was born at Thiruvanaikkaval near Tiruchirappilly in Tamil Nadu. Educated in Presidency College, Madras. Married to Lokasundari. Awarded Nobel Prize for Physics in 1930 for his study of scattering of light. Popularly known as 'Raman Effect', the theory describes change in the frequency of light passing through transparent medium.



Hargobind Khorona (b. 1922): Now an American citizen, was born in Raipur, Madhya Pradesh. He is married to a Swiss. Khorona was awarded Nobel Prize in 1968 for medicine for laboratory synthesis of a yeast gene for the first time.

Mother Teresa (b. 1910): Was born to Albanian parents in Skoplje, Yugoslavia and baptized Agnes Gonxha Bojaxhin. She came to India when she was 18 and took up teaching. She established a new congregation 'Missionaires of Charity', which was approved by Vatican in 1950. Mother Teresa became an Indian citizen in 1948. She was awarded Nobel prize for Peace in 1979.

Subramanian Chandrasekhar (b. 1910): Now an American citizen, was born at Lahore, now in Pakistan, where his father was working. He was educated in Presidency College, Madras. Nobel laurate C. V. Raman was his uncle. All of Chandrasekhar's three brothers are scientists. Married to Lalitha, who was one year his junior in college. She is also a Physicist. He was awarded Nobel prize for Physics in 1983 for what is now known as 'Chandrasekhar's Limit', which determines the minimum mass of a dying star enabling it to survive

1972 Heinrich Boell (Germany)
1973 Patrick White (Australia)
1974 Eyvind Johnson & Hary Edmund Martuson (Sweden)
1975 Eugento Montale (Italy)
1976 Saul Bellow (US)
1977 Vincente Aleixander (Spain)
1978 Issac Bashevis Singer (USA)
1979 Odysseus Elytis (Greece)
1980 Czeslaw Milosz (Poland)
1981* Elias Canetti (Bulgaria)
1982 Gabriel Garcia Marquez (Colombia)
1983 William Golding (Britain)
1984 Jaroslav Seifert (Czechoslovakia)
1985 Claude Simon (France)
1986 Wole Soyinka (Nigeria)

Magsaysay Awards

Richard William Timus, Christian Missionary in Bangladesh won the 1987 Ramon Magsaysay Award for International Understanding.

The awards ceremony in Manila coincided with the 80th anniversary of the birth of Magsaysay, a former Philippine president who instituted a land reform programme to defuse a communist insurgency in the 1950s. He was killed in a plane crash in 1957.

Other winners: Diane Ying, Taiwan (Journalism, Literature and Creative Communication Arts), Dr. Aree Valyasevi, Thailand (Community leadership), Hans Bague Jassin, Indonesia (Public Service) and Tabung Haji, Malaysia (Government Service).

Each of the eight winners received a gold medallion and $ 20,000 (about Rs. 2,50,000).

Among those who won the award previously are the following *Indians:*

International Understanding: Mother Teresa (1962);

Journalism, Literature and Creative Communication Arts: Amitabha Chowdhury (1961), Satyajit Ray (1967), B.G. Verghese (1975), Gour Kishore Ghosh (1981), Arun Shourie (1982), R.K. Laxman (1984);

Community Leadership: Acharya Vinoba Bhave (1958), Dara N. Khurody; Tribhuvandas K. Patel and Verghese Kurian (1963), Kamaladevi Chathopadhyay (1966), M.S. Swaminathan (1971), Ela R Bhatt (1977), Rajankant S. Arole and Mabelle R. Arole (1979);

Public Service: Jayaprakash Narayan (1965), M.S. Subbalakshmi (1974); Manibhai Phimbai Desai (1982); Muralidhar Devidas Amte (1985).

Government Service: C.D. Deshmukh (1959).

Literature

Jnanpith Award: 1986: Rs. 1.5 lakh): Oriya poet Dr. Satchidananda Routroy.

'Sachi Routroy', 70, as he is affectionately called, is the Bhagirath of modern Oriya poetry Among his outstanding works are Palhevo, Rakta Sikha, Ultho Jago Bhuki Bandi, Pallisree, Kavita and Baji Rout. 'Kavita' won the Central Sahithya Akademi Award in 1962.

Following is the list of previous recipients:

1965 Mahakavi Sankara Kurup: *Odakuzhal*; 1966 Tara Shankar Banerji: *Ganadevata*; 1967 Dr. K. V. Puttappa: *Ramayana Darsanam*; Uma Shankar Joshi: *Nishit*; 1968 Sumithranandan Pant: *Chidambaram*; 1969 Firak Ghorakhpuri: *Gul-a-Ngma*; 1970 Dr. V. Satyanarayana: *Ramayana Kalapavrikshana*; 1971 Bishnu Dey: *Smithi Sattha Bhavisvath*; 1972 Ramdhari Singh Dinakar: *Urvasi*; 1973 D. R Bhendhre: *Nakuthanthi*; Gopinath Mohanti: *Madimadal*; 1974 V. S. Khandhekhar: *Yayathi*; 1975 P. V. Akilandam: *Chitirappavai*; 1976 Ashapurna Devi: *Pradhama Prathi Shruti*; 1977 Dr. K Shivaram Karanth: *Mukajia Kanakasugala*; 1978 S. H. Valsyayan: *Kitni Navom Me Kithnibar*; 1979 B. K Battacharya: *Mrutunjaya*; 1980 S. K Pottekkat: *Oru Desathinte Katha*; 1981 Amrita Pritam: *Kagaz ke Kanuvas*; 1982 Mahadevi Verma: *Yama*; 1983 . Dr. Masthi Venkateswara Iyenkar: *Chikkaveera Rajendra*. 1984: Thakazhi Sivasankara Pillai: *Kayar* and other novels. 1985: Pannalal Patel: *Manvini Bhavai*

Asan World Prize: Indo-Anglian poetess Mrs. Kamala Das, also known by her pen-name Madhavikutty, won the 1985 Asan World Prize for her literary work. Mrs. Kamala Das is the fifth recipient of the Asan World Prize since it was instituted in 1981 in memory of the Kerala poet Kumaran Asan. The previous recipients are: Leopold Sedar Senghor (Senegal), Nicholas Guillen (Cuba), Ethiravire Saradchandra (Sri Lanka) and Judith Wright (Australia).

Asan Prize: For a 'national poet' in memory of Malayalam poet Kumaran Asan was awarded to K.S. Narasimhaswamy, Kannada poet for his anthology 'Mallikamal' and M.P. Appan, Malayalam poet for his anthology

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* Born in Bulgaria but living in London and writing in German

Jeevitha Sayannathil'

Jnanpith Award for the Younger Generation: Vinod Das for his collection of poems, 'Khilaf Hawar Se & Gezartey Huey'

Jnanpith's Moorthidevi Sahitya Puraskar: 1985: Manubhai Pancholi 'Darshak', Guarati Novelist.

Booker Prize: Top British literary award £ 15,000: Kingsley Amies for his novel 'The Old Devils' with 'brilliant comic insight.'

Rajarajan Award: By Tamil University Tanavur. Rs. 1,00,001 – Jayakanthan for his novel Sundarakandam'.

Vayalar Award: By Vayalar Memorial Trust. Rs.25,000: Prof. N. Krishna Pillai for his textual criticism 'Prathipathram bhashnabedham'.

Children's Book Trust Award: Inaugural Children's Book Trust – UNICEF award. Children's Fiction: Kaveri Bhat for novel 'Once upon a Forest'. Picture Book: Mitra Phukan for Maman's Revenge'.

Jawaharlal Nehru Literacy Award: By the Indian Adult Education Association: Prof. N.G. Ranga.

The Tagore Memorial Award: Women's Literacy: Mrs. Lakshmi N. Menon.

Rajaji Literary Award: By Bharatiya Vidya Bhavan. 1. Dr. V.K. Gokak for his epic poem, Bharata Sindhu Rashmi', 2. Prof. Sukumar Azhikodu for his prose work, 'Thathvamasi'

Science

Third World Academy Award: By the Third World Academy of Sciences, Trieste, Italy. $ 10000 (about Rs.1,25,000). Physics: E.C.G. Sudarshan, Director, Institute of Mathematical Sciences, Madras; Chemistry: Prof. Leopoldo De Meis, Brazil and Mathematics: Prof. Liao Shan Tao, China. Prof. Sudarshan won the award for "his fundamental contribution to the understanding of the weak nuclear force, in particular, for his part in the formulation of the Universal V-A theory of Sudarshan and Marshak".

Albert Einstein World Award of Science: Dr. M.S. Swaminathan, Director General, International Rice Research Institute, Manila, for his 'contribution in the field of Plant Genetics'.

Edward Warner Award: By International Civil Aviation Organisation: JRD Tata for his contribution to aviation including his solo flight from Bombay to Karachi in 1932.

Pritzker Price: Regarded as the Nobel Prize for architecture. Instituted by Jay Pritzker of Chicago, President of Hyatt Foundation $ 1,00,000 (about Rs.12,50,000): Gottfried Boehm, Cologne.

The Fields Medal: Regarded as Nobel Prize for Mathematics. Instituted 50 years ago by Canadian Mathematician, John Charles Fields and given every year by International Mathematical Union, to mathematicians under 40: Gerd Faltings, a German teaching at Princeton University, Michael Freedman, University of California, San Diego and Simon Donaldson, Oxford University for breakthroughs in number theory and topology.

Hancock Medal: By the British Plastic and Rubber Institute: K.M. Philip, former President, All India Rubber Industries Association, for his contribution for the global growth of rubber industry.

R.D. Birla Memorial Award: By the Indian Physics Association. Rs.50,000: Dr. Raja Ramanna for his contribution in the field of nuclear fission studies, etc.

Prix de These 1985: By CNRS – The French National Centre for Science & Research – Brahmanand Mohanty, IIT, Madras and Ravindra Satish Topgi, National Institute of Oceanography, Goa.

Bhatnagar Medal: The Shanti Swarup Bhatnagar Medal by the Indian National Science Academy: Dr. Dilip Kumar Ganguly, Indian Institute of Chemical Biology, Calcutta.

Kalinga Prize: The UNESCO administered award for 1987 for the popularization of Science: Dr. Marcel Roche, the permanent delegate of Venezuela to UNESCO. The award, one among the Science Prizes instituted by UNESCO, carries an amount of £ 1500.

The Kalinga Prize was instituted by Biju Patnaik, industrialist and politician, who is the founder and Chairman of the Kalinga Foundation Trust in the state of Orissa. UNESCO awarded the prize for the first time in 1952.

The winner of the prize also receives the UNESCO Gold Medal and is invited to visit India as a guest of Kalinga Foundation Trust.

Vainu Bappu Memorial Award: Instituted by the Indian National Science Academy: Dr. S. Chandrasekhar, the India-born American astrophysicist.

Young Scientist Award: By the Council of

Scientific and Industrial Research (Rs.10,000): Dr. M.K. Gurjar, Dr. T. N. Guru, Dr. Sayed Wajih Ahmed Naqvi, Dr. K. Ravindranath and Dr. B. Jayaraman.

Om Prakash Bhasin Award: Dr. H.K. Jain, Dr. K.G. Menon, Dr. H.Y. Mohan Ram, Dr. P.V.S. Rao, Dr. N. Tata Rao, Dr. S. Varadarajan, Dr. L.K. Doraiswamy, Dr. M.S. Valiathan and Dr. A.P.J. Abdul Kalam.

General Foods' World Food Prize: $ 200,000 (about Rs. 25 lakhs): Dr. M.S. Swaminathan.

U.N. Population Award: President Hussain Mohammad Ershad of Bangladesh and Tunisia's National Office for Family and Population.

Indira Gandhi Prize for Popularising Science: Instituted by the Indian National Science Academy: Rs.10,000: Dr. M. Nalini Mohan Rao, New Delhi.

Japan Prize: Gurdev Kush, India; Henry M. Beachel and Theodore Maiman (both of USA).

Asian Productivity Organisation Award: Dr. A.N. Sexena.

C.V. Rman Award: Prof. R. Vijayaraghavan. TIFR, Bombay.

Medicine

Birla Award: By Rameshwardas Birla Smarak Kosh. Rs.1,00,000: Dr. B.K. Bachhawat, Head of the department of Bio-chemistry, Delhi University for research in the field of medicine.

Dhanwantari Award: By the Indian National Science Academy: Dr. P.N. Tandon, AIIMS, New Delhi.

Dr. B.C. Roy National Award: Rs.50,000 Prof. V. Ramalingasamy: Director General of Indian Council of Medical Research, Dr. R.K. Madan, Bombay and Dr. M.M.S. Siddhu, Lucknow.

Ernst Jung Prize: ($ 1,68,000): Dr. Peter D. Richardson of the US and Dr. Karl Julius Ullrich of W. Germany.

Peace

Indira Gandhi Award for National Integration: By Indian National Congress: 1986: Mrs. Aruna Asaf Ali; Previous winner: Swami Ranganathananda of Ramakrishna Mission.

Indira Gandhi Prize for Peace, Disarmament and Development: Rs. 15 lakhs. The Parliamentarians Global Action.

Waterler Peace Prize: By the Carnegi Foundation, Netherlands: Dr. V. Kurian, for hi revolutionary work for the Indian dairy farmers. Rs.2,00,000

Indira Gandhi Gold Plaque Award: By Asiatic Society, Calcutta: Olof Palme, Sweden (Posthumously).

Freedom from Fear Award: By the Franklin Delano Roosevelt Four Freedoms Foundation, U.S.: Olof Palme, Sweden (Posthumously).

Longowal Award: By Sant Harchand Singh Longowal Memorial Foundation: Acharya Sr Sushil Muniji Maharaj, founder Internationa Mahavir Jain Mission and the World Fellowship of Religions.

Dag Hammarskjold Academy Peace Prize: King Hussein of Jordan.

Lokmanya Tilak Award: By Lokmanya Tilak Memorial Trust: Rs.25,000: S.A. Dange Communist Leader, Public Service.

Nehru Award: Instituted by Governmen of India, the Jawaharlal Nehru Award fo International Understanding carries a cash prize of Rs. 15 lakh, a citation and a scroll o honour: Olof Palme, former Swedish Prime Minister (posthumous).

Former Winners:

1978: Most Ven Nichidatsu Fuji
1979: Nelson R. Mandela
1980: Barbara Ward
1981: Gunnar Myrdal and Mrs. Alva Myrdal
1982: Dr. Leopold Sedar Senghor
1983: Dr. Bruno Kreisky
1984: Mrs. Indira Gandhi (Posthumous)

U Thant Award: The award originall established by U Thant and named after him since his death, is made to an outstanding personality who through his or her efforts ha contributed to the enhancement of cultura understanding and development between nations.

Mrs. Indira Gandhi received the Award i 1982.

Past recipients of the award include Dr. S Radhakrishnan, Prof. Arnold Toynbee, Mrs Barbara Ward, U Nu, Mr. Lester Pearson, Mr Adlai Stevenson and Mrs. Nancy Wildon Ross

Third World Prize: The Third World Foundation Prize of $100,000 for 1985 was given t South-African black nationalist leader, Nelso Mandela and his wife Mrs. Winnie Mandela.

'Beyond War' Prize: Six heads of state, ir cluding Prime Minister Rajiv Gandhi have bee honoured by California-based 'Beyond War' pacifist organisation in 1985.

The six leaders—from Mexico, Argentina, India, Sweden, Greece and Tanzania—won the "Beyond War" prizes for their participation in a five-continent peace initiative introduced in India in January 1985.

The six heads of state, who signed the New Delhi declaration for disarmament and peace are Mexican President Mr. Miguel de La Madrid, Argentine President Mr. Raul Alfonsin, Prime Minister Mr. Rajiv Gandhi, former Swedish Prime Minister Mr. Olof Palme, the Greek Prime Minister Mr. Andreas Papandreou and the former Tanzanian President Mr. Julius Nyerere.

Viswa-Gurjari National Award: Dr. Rajendra Vyas, Bomaby.

Olof Palme Prize for World Peace: Cyril Ramaphosa, leader of S. Africa's National Union of Miners.

Mahatma Gandhi World Peace Award: From the Gandhi Memorial International Foundation, New York: Ryoichi Sasakawa, Japan. Previous winners: Mother Teresa, Jimmy Carter, Mrs. Corazon Aquino.

Peace-Messenger Award by the U.N.: The Bharat Scouts and Guides and Gujarat Vidyapith.

Martin Luther King Non-violent Peace Prize: Corazon Aquino.

World Justice Award: Justice Nagendra Singh, Indian President of the International Court of Justice, The Hague.

Environment

Right Livelihood Award: '87: Instituted by Swedish-German writer Jakob Von Uexkull. $100,000: The Chipko movement in India, Prof. Hans-Peter Durr, West Germany, Frances Moore Lappe, U.S. and Mordechai Vanunu, Israel.

Indira Gandhi Paryavaran Puraskar: 1987: Instituted by the Union Government. Rs.100,000: Bombay Natural History Society.

Bajaj Award: By Jamnalal Bajaj Foundation. (Rs. 1 lakh each). 1. Natwar Thakkar, Nagaland for consructive work; 2. Sunit Bonde, Maharashtra for the 'application of science and technology for rural development'; 3. Mrs. Jankidevi Bajaj Award: Mrs. Annapragada C. Krishna Rao, Madras, for contribution to the welfare and uplift of women.

K.P. Goenka Award: For environment: Rs.1,00,000. Rural Agricultural Institute, Narazangaon. Additional award of Rs.50,000: Safai Vidyalaya, Ahmedabad.

Sanjay Gandhi Award: By Sanjay Gandhi Memorial Trust. Given in 3 disciplines. 1 lakh each. Environment and Ecology: Dr. T.N. Koshoo, Botanist. Energy: C.V. Sundaram, Director, Reactor Research Centre, Kalpakkam. Family Welfare and Population Control: Dr. N.R. Moudgal and Dr. B.N. Saxena.

J. Paul Ghetty Award: $ 50,000 (about Rs. 6,25,000): Sir Peter Scott, Founder-Chairman of World Wildlife Fund.

Dadabhai Naoroji Memorial Prize: Dr. Salim Ali, Bombay.

Arts

Spirit of Freedom Award: M. S. Subbalakshmi, the living legend of Carnatic music. Second recipient. First won by Zubin Mehta, noted music conductor.

Lata Mangeshkar Award: By the Madhya Pradesh Government Rs. 1,00,000: Jaidev, Hindi music director.

Tulsi Award: By the Madhya Pradesh Government Rs. 1,00,000: Mani Madhawa Chakyar, Kerala for his contribution to the dance form of 'Koodiyattam'.

Kalidas Samman: By the Madhya Pradesh Government – Rs. 10,000. P.L. Deshpande, Marathi writer, Maqbool Fida Hussain, Painter and Vedantam Satyanarayan Sarma, Kuchipudi exponent.

Oscar Award: At the 59th annual awards offered by American Academy of Motion Picture Arts and Sciences the following were the winners:

Best Picture: Platoon, directed by Oliver Stone who also won the best Director award. The best sound and the best editing awards also went for it.

Best Actor: Paul Newman.

Best Actress: Marlee Matlin for Children of a Lesser God.

Best Screen Play: Ruth Prawar Jhabvala for 'A Room with a View'

Best Picture Award of the Academy of British Film and Television Arts: 'A Room with a View' produced by Ismail Merchant.

Vishwa-Gurjari International Award: Natwar Bhavsar, U.S. resident Gujarathi Painter.

Miss World: Gisella Jeanno-Marie Laronde, 23, Miss Trinidad and Tobago. Prize money $ 30,000.

Miss Universe 1986: Barbara Palacios, 22, Venezuela.

Miss International 1986: Helen Fairbrother, 20, Britain.

Miss India 1987: Priyadarshini Pradhan, Bombay.

Media

Pulitzer Prize: 11th year. International Reporting award: Machael Parks, 'The Los Angeles Times' for his coverage of S. Africa.

Golden Pen of Freedom: By the American Newspaper Publishers' Association: Anthony Heard, Editor of the 'Cape Times', South Africa.

B.D. Goenka Awards: For excellence in Journalism. Rs. 1,00,000 each. A.N. Sivaraman, R.K. Lakshman, S. Sahay and K.N. Hazarilla.

Indira Gandhi Media Award: By the Council of Asian Indian Associations, Washington: Sundram Sankaran, Deputy chief of Information and Public Affairs, The World Bank.

Ashok Jain Award: For national awareness advertising Rs. 20,000. Best campaign in English: Miss Harpreet Sawhney, Bombay, for her entry on drug addiction. In Hindi, Prafull Satam of Bombay for his entry on blood donation.

ISA—Khatau Gold Medal: By Indian Society of Advertisers: Advertising Club, Bombay.

Inlaks Journalism Award: By the Inlaks Foundation, London. For Indian journalists under 35, Rs. 1,00,000 in convertible currency: Sekhar Gupta, 'India Today', for his 'considerable investigative skill as well as his versatility'.

The PUCL Journalism for Human Rights Award: 1986: Manimala of 'Navbharat Times'.

National Honours

Bharat Ratna: 1987: 'Frontier Gandhi' Khan Abdul Ghafarkhan. The following are the former recipients: C. Rajagopalachari (1954), S. Radhakrishnan (1954), C. V. Raman (1954), Jawaharlal Nehru (1955), Bhagwan Das (1955), M. Visweswaraiya (1955), Govind Ballabh Pant (1958), D. K. Karve (1958), B. C. Roy (1961), P. D. Tandon (1961), Rajendra Prasad (1962), Zakir Hussain (1963), P. V. Kane (1963), Lal Bahadur Shastri (posthumous) (1966), Mrs. Indira Gandhi (1971), V. V. Giri (1975), K. Kamaraj (posthumous) (1976), Mother Teresa (1980), Vinoba Bhave (1983)

Padma Vibhushan: 1987: Gen. A.S. Vaidya, Pune (Posthumous), Dr. Benjamin Peary Pal, N. Delhi; Mrs. Kamaladevi Chatopadhyaya, Bangalore and Dr. Manmohan Singh, New Delhi.

Param Vishisht Seva Medal (PVSM): Lt. Gen. J.K. Puri, Lt. Gen. Anand Sarup, Lt. Gen. B.P. Singh, Lt. Gen. Tripat Singh, Lt. Gen. N.S.I. Narahari, Lt. Gen. I.M. Ahuja, Lt. Gen. L. Kapur, Lt. Gen. B.C. Nanda, Maj. Gen. J.S. Jaswal, Maj. Gen. K.S. Brar, Brig. Jal Master, Vice Admiral I.S. Khurana, Vice Admiral S.M. Gadhihoke, Vice Admiral S.C. Chopra, Vice Admiral B.G. Mudholkar, Air Marshal S.G.N. Kunzru, B.S. Sikand, S.K. Mehra, N.C. Suri, P.S. George and C.S. Raje.

Prime Minister's Shram Awards: By Labour Ministry. Shram Bhushan (Rs. 50,000): Birendra Kumar Guha, Rourkela and Jagdeesha, Bangalore.

National Award for the Welfare of the Handicapped: By the Ministry of Welfare. Individual: Baba Amte. Institution: Isaket Institute of Orthopaedics and Rehabilitation, Ambala, 2. Viklang Kendra, Allahabad.

Bravery Award: By the Indian Council of Child Welfare. Sanjay Chopra Award: Haribal Yadav, West Champaran, Bihar. Geeta Chopra Award: Krishna Burmen, Cooch Behar, West Bengal (posthumously).

National Youth Organization Award: Rs. 1 lakh. By the Ministry of Human Resource Development: P. Subramaniam, President of the Nava Prathibha Arts, Sports and Cultural Association, Quilon.

Sahitya Akademi Award: The Sahitya Akademi selected 22 books for its 1986 award. The awards include a casket containing an inscribed copper plaque and a cheque for Rs. 10,000.

The following are the winners:

Assamese: *Benudhar Sarma* (biography) Tirthanath Sarma. Bengali: *Rajnagar* (novel) Amiyabhusan Majumdar. Dogri: *Sunne D Chiree* (short stories) Om Goswami. English *Rich Like Us* (novel) Nayantara Sahgal. Gujarati Dhulamani Pagilio (reminiscences) Chandrakant Sheth. Hindi: *Apurva* (poetry) Kedarnath Agarwal. Kannada: *Bandaya* (novel) Vyasaraya Ballal. Kashmiri: *Shibil Kul* (poetry) Dinanath Nadim. Konkani: *Hanv Manis Ashwatham* (poetry) Prakash Padgaonkar. Maithili: *Nati Patrak Uttar*, Subhadra Jha. Malayalam: *Kavi taduvani* (literary criticism) M. Leelavathy

Manipuri: *Mangi Isei* (short stories) Kh. Prakash Singh. Marathi: *Khoon Gathi* (poetry) N.G. Deshpande. Nepali: *Chakrabyuha* (short stories) Sharad Chhetri. Oriya: *Dwa Suparna* (poetry) Saubhagayakumar Mishra. Punjabi: *Shehar Tegran* (short stories) Sujan Singh. Rajasthani: *Dwaraka* (poetry) Mahaveer Prasad Joshi. Sanskrit: *Sri Radha Charita Mahakavyam* (epic) Kalikaprasad Shukla. Sindhi: *Vichhoro* (short stories) Sundri Uttamchandani. Tamil: *Ilakkiyathukku Or Iyakkam,* Ka. Na. Subramanyam. Telugu: *Andhra Sahitya Vimarsha Angla Prabhavamu,* G.V. Subramanyam. Urdu: *Tanqdueedi Afkar* (literary criticism) Shamsur Rahman Faruqi.

Sangeeta Nataka Akademi Awards, 1986: A Tamara Patra, a citation and Rs. 10,000.

Fellows: Film-maker Satyajit Ray, music director Anil Biswas and singers Hemant Kumar Mukhopadhyay, Komal Kothari, S. Ramanathan and V. V. Swarna Venkatesa Deekshithar.

Carnatic classical music: B. Rajam Iyer (vocal), Nedunuri Krishnamoorthy (vocal), Rajeswari Padmanabhan (veena) and M. Chandrasekharan (violin).

Dance: Krishnaveni Lakshmanan (Bharatnatyam) and Priyambada Mohanty (Odissi)

Theatre: K. T. Muhammed, Satya Prasad Barue (playwriting — Assamese), Alyque Padamsee (direction), Prabhakar Panshikar (acting — Marathi), Pisapati Narasimha Murthy (acting — Telugu) and Khaled Choudhury (scenic design).

Traditional folk and tribal art: K. P. Krishnankutty Poduwal, Jaffer Hussain (Quwwali), Ram Kumar Chatterjee (Shyama Sangeet), Asa Singh Mastana (folk music — Punjab), Bhubaneswar Mishra (Odissi music), Gavari Bhai (folk music — Rajasthan Satyabhambhi Pandharpurkar (Laveni) and Sheikh Nazar (Burra Katha — Andhra Pradesh).

Lalitha Kala Akademi Awards: In painting sculpture, graphics and drawing the following persons won awards. The award carries a certificate and Rs. 10,000 in cash.

Painting: Taj Singh, R. P. Nigam, Umesh Kumar Saxena and R. Umesh. *Graphics:* Sukhvinder Sinh and Pinak Barua. *Sculpture:* J. K. Chillar and S.M. Shahid. *Drawing:* Yusuf.

National Film Awards: In the 34th National Film Awards of 1986, the following were the recipients:

Best Feature Film: 'Thabarana Kathai', Kannada film by Girish Kasaravally; Best Director: Aravindan for his Malayalam film 'Oridathu'; Best Actor: Charu Hassan for his role in the Kannada film 'Thabarana Kathai'; Best Actress: Monisha for her role in the Malayalam film 'Nakha Kshathangal'; Special jury Award: John Abraham for his Malayalam film 'Amma Ariyan'; Best male singer: Hemant Mukherjee for the Bengali film 'Lalan Fakir'; Best female singer: Chitra for the Malayalam film 'Nakhakshathangal'.

Dada Saheb Phalke Award: For outstanding contribution to the cause of cinema: B. Nagi Reddy. Previous recipients: Devika Rani Roerich, B.N. Sircar, Prithviraj Kapoor (posthumous), Pankaj Mullik, Ruby Myers, (Sulochana), B.N. Reddy, Dhiren Ganguli, Kanan Devi, Nitin Bose, R.C. Boral, Sohrab Modi, Naushad Ali, P. Jairaj, L.V. Prasad Durgakhote, Satyajit Ray and V. Shantaram.

POPULATION 5 BILLION

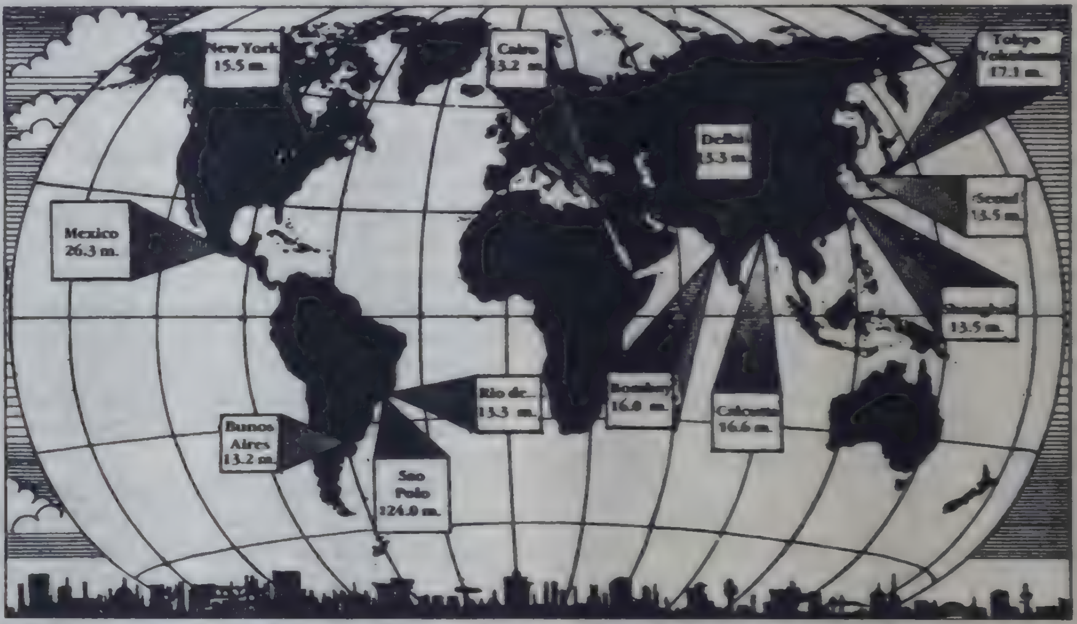
The world population touched 5 billion in the middle of 1987. It will pass the eight billion mark by 2022 and will finally halt at about a century from now at about ten billion, according to the United Nations Fund for Population Activities (UNFPA) report.

In 1987 the world population passed the five billion mark growing at the rate of approximately 1,000,000,000 people every 12 years. The six billion figure will be reached before the end of the century, seven billion by 2010 and eight billion by 2022.

Every minute the number is increasing by 150, every day by 220,000 and every year by more than 80 million. Ninety per cent of the growth is in developing countries.

Today's demographic landscape shows a stark difference between two sets of countries — one with low and one with high population.

In the more developed regions, growth has been very slow since the 1960s. The current growth rate of the developing countries is more than three times as high and their proportion of world population is increasing dramatically. Today more than 75 per cent of the world's population is living in developing



UNFPA says that half of the world population will be living in towns and cities by 2000. The above map shows the population of 12 important world cities at that time.

countries.

About 65 per cent of the annual addition t the world population live in the poore developing countries. This proportion wil increase to 72 per cent by 2050.

Life expectancy and fall in infant mortality i developing regions have greatly improved an are now about the same as in the mor developed regions at the beginning of the 20t century.

The developed countries passed their firs and only billion marker in 1965. The les developed countries had already reached thei first billion by the 1950s. The two and thre billion markers for the less developed region followed rapidly in 1958 and 1975.

Asia had already passed the one billio mark before 1950. It is expected to surpas four billion by 2020. The contrast betwee Africa and Europe (including the Soviet Union) is especially striking. Europe passed th half billion mark before 1950, while Afric attained it in 1982. But, Africa is expected t reach one billion sometime between 2005 an 2010. Europe will probably never reach it, th report noted.

In 1950 Africa's population was about half o that of Europe. Before 2050 it will be almos three times as large.

Africa is currently growing at rates neve experienced by other countries. While, mos

Population Ticking

UN Secretary-General Javier Perez de Cuellar was presented on August 5, 1987 with a "population clock" that keeps track of world population growth and of any one of 157 countries, updated each minute.

The clock was the idea of the UN Fund for Population Activities as part of its 'World of five billion" information campaign aimed at making world leaders aware of population problems.

The first model was presented to President Lazar Mojsov of Yugoslavia during ceremonies in Zagreb on July 11, 1987 the day the UNFPA calculated the world's population reached the five billion mark.

The fund plans to give a clock to each Head of State or Government.

UNFPA Executive Director Nafis Sadik who made the presentation said the clock was "designed as a compact instrument that could sit on the desk of key people making decisions about population planning."

Gaspar, the Five Billionth

On July 11, 1987 was born the five billionth baby, a child the demographers have chosen as a symbol of the world population explosion.

Mrs. Sanj Gaspar (23), a nurse in the Yugoslav town Zagreb gave birth to a male infant, the five billionth inhabitant of the world. The infant was named Matej Gaspar.

A celebration was held at the clinic which was attended by the U.N. Secretary-General, Mr. Perez de Cuellar who hoped that Gaspar and his generation would live in peace. Matej Gaspar and his parents received congratulations and gifts.

The world crossed the four billion mark in 1974. In the last 13 years, the globe has seen rise in population of one billion. But, chances are that "we will be six billion" within the next 13 years, that is, by the end of this century.

According to the projections of the Population Institute, Washington, the world population would reach 11 billion by 2050 and could result in a crisis leaving the Third World "wrecked by vast poverty and misery".

Mr. Wener Fornos, the Institute president says the global population was growing at the unprecedented rate of 87 million people per year.

The Institute's report says 20 countries account for 69 per cent of the present world population. They are: the U.S., Bangladesh, Brazil, Burma, China, Egypt, India, Indonesia, Iran, Kenya, Mexico, Nigeria, Pakistan, the Philippines, South Korea, Tanzania, Thailand, Turkey, Vietnam and Zaire.

The Indian scenario gives a gloomy picture. India which now has 76 crores people will have nearly 100 crores by 2000 A.D.

Now the demographic transition has begun towards zero-level growth, though at a slower pace, says a review by the Planning Commission.

By 2000, half of the world's population will be living in cities. The above map shows a projection of population at that time in the 12 most populous cities.

other parts of the world have passed the stage of maximum growth, the growth rate of sub-Saharan Africa continues to increase. The fastest growing country in the world is Kenya whose 20 million population at the current rates of growth (four per cent a year) will double by 2005.

These changes in the world population have been accompanied by vast changes in population distribution and structure.

The first billion at the beginning of the 19th century was basically rural, with less than ten per cent living in towns. Currently, more than 1.6 billion people, 40 per cent of worl population, live in urban areas.

Earlier, almost three-quarters of the population in developed regions lived in urban areas while in developing countries, the figure wa about one-third. The total urban population o the less developed regions is now larger tha that of the more developed countries. Most o the world's largest cities are now in th developing regions and are attaining size never dreamed of before.

The 1987 "State of World Population" repor by the UNFPA says "beyond five billion, th

China's Birth Rates Rise Again

Birth rates are rising again in the world's most populous nation, as China's monumental birth-control campaign loses its impact, Chinese officials and foreign experts agree.

China's economic restructuring, with its emphasis on personal initiative, seems partly responsible. As peasants grow wealthier, they often are willing to pay the fines imposed for having more children than the government rules allow.

But a second reason is the taming of China's family planning program, following international criticism that it encouraged the killing of female infants and placed pressure on women to abort their fetuses even late in pregnancy.

In 1986, the birth rate rose to about 20.8 births for each 1000 people up from 17.8 in 1985. China ended 1986 with 14.8 million more inhabitants than in 1985, bringing its population to 1.06 billion.

For China, a nation where swarms of bicycles convey people from one crowd to the next, where small family farms are divided smaller and smaller with each generation, recent statistics showing a leap in the birth rate are taken very seriously. That has led to heightened concern among some diplomats and foreign experts about how China might respond.

At the beginning of the 1980s, a vigorous crackdown slashed birthrates that by some projections might have resulted in a Cinese population of five billion or more in the next century.

Yet the crackdown's harshness — putting enormous pressure on women to have just one child or to abort subsequent pregnancies — aroused indignation in the West and led the United States to cut off support for UN population programmes, which play a role in China.

Twenty-two per cent of the world's people live in China, on 7 per cent of the world's arable land. The population density is four times that of the United States and slightly higher than France's, without taking into account the Gobi Desert and other areas that cannot be cultivated.

China reacted to the problem over the last decade with drastic measures. Volunteers monitor the fertility of nearly all women of child-bearing age, sometimes even tracking their menstrual cycles.

Couples are given pay increases of 5 per cent to 40 per cent, plus long maternity leave and better housing, if they agree to have just one child. They are fined heavily, severely criticised by their peers and even risk losing their jobs if they produce more.

Chinese women bear an average of 2.4 children up from 2.2 in 1985. But population experts say the emphasis on limiting couples to one child has been somewhat misleading, except for urban residents.

Urban couples must usually settle for one child, but the rules are more flexible for the nearly 80 per cent of the population in rural areas.

Time to Pay Attention

Nafis Sadik, 57, became the first woman to head a major United Nations agency when Secretary-General Javier Perez de Cuellar appointed her Executive Director of the United Nations Fund for Population Activities (UNFPA), in April 1987. In her new role, Sadik a Muslim, a physician and a native of Pakistan, manages the largest multilateral donor organization involved in Third World population projects.

Excerpts from her viewpoints expressed in a Newsweek interview:

Rapid population growth is having a harmful impact on the environment and on the world economy. It is affecting how we live now and how we will live. The urgent challenge for developing countries is to step up their efforts to slow population growth.

For the developed countries, this is a time to pay more attention to resource consumption and to environmental preservation and to help the Third World develop co-ordinated demographic and economic policies.

There are certain regions where annual population growth is alarming — specifically Subsaharan Africa and South Asia. The world now adds 90 million people a year, but of this figure 80 million are born in the Third World, in regions that are least able to cope with the growth.

One principal lesson that planners in Africa and South Asia must bear in mind is that population programs cannot be fashioned in isolation. They must be part of an overall integrated approach to development strategy. The emphasis must be at the grass-roots level because it is individuals and couples who decide on family size.

Nafis Sadik

One of the major problem in the development business is that of aid co-ordination. All over the Third World there is a multiplicity of programs and projects, and often there is conflict and confusion in the way aid is administered. Donor nations must have a co-ordinated approach so that aid is effective.

There must be increased political commitment by the leaders of more Third World states to population issues. Such commitment should be translated into effective programs. A country's strength depends not on its numbers but on the balance among population, consumption and resources.

path is dictated neither by chance nor by rigid fate".

"One path leads to a balance between nature and human beings which will build a future to safeguard succeeding generations. The other will lead to difficulties which might degenerate into disaster if fertility decline is too long postponed."

Only a committed combination of deep personal motivation and strong political will can make the choice.

Ninety per cent growth of population at the rate of over 80 million a year poses the question: Is reaching five billion a triumph for humanity or a threat to its future? The answer lies with the international community which should know that world population is everybody's concern.

The UNFPA document comes close on the heels of the warning by the state of the world 1987 report by the Washington-based World Watch Institute that if governments in developing countries fail to meet the challenge of reducing birth rates of their populations, economic deterioration could eventually lead to social disintegration of the sort that undermined earlier civilizations when population demands became unsustainable.

Population increases have brought problems as well as progress — and their effects are felt very differently in different countries. It illustrates this by looking at the scenario for two hypothetical countries which today have populations of twenty million.

In one country, government policies are reducing the growth rate such that the final population will stabilise at thirtyfive million in the next century. In the other where there is little access to family planning, the final population is likely to be around 120 million.

Factors such as the infant mortality rate and life expectancy play a critical role in determining the future pattern of population growth.

The report discusses some of the current misconceptions about population. One is that greater numbers of people will themselves resolve any problems created by higher

Baby Boom

Some decades ago, a major problem afflicting developing countries was the high mortality rate. Increased medical facilities have to a large extent reversed this trend. Of special significance is the fact that fertility of women has tended to increase.

The Economic and Social Commission for Asia and Pacific (ESCAP), now warns us that women entering the child bearing age constitute a significant proportion of female population in Asian and Pacific region countries.

Such regions face the possibility of a second generation baby boom which means that even if the number of births per woman declines rapidly the birth rate may stay high. So the total number of births may be greater than before.

Countries like India will have to place greater emphasis on maternal and child health programmes apart from providing family planning in the narrow sense of birth control services. In the long term, ESCAP points out, the baby boom will lead to a rapid increae in population of the younger working age category.

Between 1980 and 2000 the number of persons aged 15-39 will increase by 470 million. The countries affected will have to take the task of structural adjustments in their economies more seriously if the future generation of young people at their productive best, are not to queue up for dole.

* * * *

In Singapore it's call for more babies. Singaporeans have been warned to produce more children or face "calamitous consequences" as a nation.

The country's minister for trade and industry, Mr. Lee Hsien Leong, told a seminar that the drop in the total fertility rate among the population was from 1.62 to 1, reports PTI.

"Our population will go into steep decline within one generation and the consequences for the economy, for defence and survival are all calamitous", Mr. Lee, the Prime Minister Mr. Lee Kuan Yew's son and a second generation leader, said.

He said one of the reasons for the declining birth rate was that fewer women were getting married and parents were having fewer children.

He said the birth rate among Chinese who form three quarters of Singapore's 2.6 million population was the most affected while that among Indians and Malays remained constant.

The minister said the government would soon launch a programme to softsell parenthood and a three-child family with the slogan "Have three of more if you can afford it".

Most Suffering State

Mozambique is the scene of more human suffering than any other nation, while Switzerland is the most comfortable place to live in, according to an analysis by a Washington population group.

The analysis, called the international index of human suffering, was released in March 1987 by the Population Crisis Committee. Using data from a variety of sources, the committee developed a numerical scale of human misery with more than 100 nations rated between zero and hundred.

Among the elements included are the gross national product per capita, inflation rate, labour force growth, increase in urbanisation, infant mortality, per capita calorie consumption, access to clean water, energy consumption, literacy and general personal freedom.

Mozambique, a former, Portuguese colony of Africa's southeastern coast, was rated at 95 on the scale, the most suffering recorded. Angola, on Africa's opposite coast, compiled a 91 and was the only other nation with a misery rating of over 90.

At the other end of the scale, Switzerland was given a misery rating of only four.

The United States had the fifth lowest misery rating with a score of eight. Others in the best five were West Germany, Luxembourg and the Netherlands.

The ratings of human misery generally ran parallel to population growth, with nations gaining people the fastest being those with the most suffering.

Rapid population growth "is a general underlying factor that makes development more difficult and relates to the condition of health, the economy, families and other factors", he said.

The ratings were developed by scoring each nation between zero and ten in ten categories of potential human misery. Little or no misery rated a zero, and the most misery rated a ten. Then the categories were added up.

population densities — since adding to the number of people also increases the stock of human ingenuity and resourcefulness.

Not necessarily so, says the report citing several historical examples, including the decline of the Mayan civilization in Central America and the population pressure on land in China which actually blocked the arrival of an industrial revolution there.

Successful countries now-a-days are often those which have adopted policies of population planning. "The combination of replacement level fertility in the Republic of Korea and the country's place in the vanguard of the newly industrialising countries is not a coincidence."

Another argument which the report counters is that population growth is economically neutral — that it does not affect economic growth for good or ill.

The UNFPA responds that there is a clear relationship between lower levels of fertility and per capita income and illustrates this with the contrasting experience of Brazil and Japan.

In 1975 Brazil's Gross National Product was $ 900 per person compared with $ 1400 for Japan. The countries have had similar growth rates but while the GNP in Brazil is now only $ 2000, that for Japan is $ 16,000.

Brazil's much higher fertility rate, says the report, gobbled up many of the fruits of her economic expansion.

The report also counters the notion that population growth is environmentally neutral — that it does not affect the balance between humanity and nature. Deforestation and species extinction are strong evidences to the contrary.

Developing countries are now planting 10 to 20 times fewer trees than they are using, one of the major causes being increasing demand for firewood in high population density developing countries. Species of plants and animals are also under threat, with the world likely to be losing upto hundred different species every day by the year 2000.

There have been many successes in slowing population growth, says the report. But much more needs to be done — particularly in those countries where population growth is adversely affecting economic development. And in all countries, improving the status of women will have a vital part to play in reducing family size.

TOWARDS DISARMAMENT

Agreement in 1987 between the United States and the Soviet Union to scrap the medium and short-range nuclear weapons from Europe is a milestone in the progress towards total disarmament.

The agreement on eliminating Intermediate range Nuclear Forces (INF) rather than controlling it has been hailed as a historic step towards total decommissioning of strategic weapons stockpiled and deployed around the world.

Under the deal, some 1000 medium and shorter range missiles between the range of 500 km and 5000 km would have to be abolished. Thus while the United States would have to dismantle 108 Pershing 2's from West Germany and 256 Cruise missiles based in Britain, West Germany, Italy and Belgium, the Soviet Union would have to get rid of 441 SS-20's aimed at both Europe and Asia, 112 SS-4's and 130 SS-12's, some of which are based in East Germany and Czechoslovakia.

The ticklish problem vis-a-vis the Pershing 1 A's in West Germany has been resolved with Bonn agreeing to eliminate its 72 missiles and return the warheads to the United States by the time the top powers' medium range missiles are eliminated.

There is a sigh of relief in the international community that the two major world powers are moving in a direction that is conducive to world peace and stability. Although sceptics argue that an INF accord cover only less than 5 percent of the top powers' nuclear arsenal, it has to be borne in mind that for the first time in the nuclear age, the two sides have reached an agreement on the elimination of an entire class of nuclear weapons.

But what the agreement demonstrate is that it is possible for nuclear weapons to be removed without any catastrophic consequences for either country's security.

Although considerable progress is said to have been made on the question of the long-range missiles, both Washington and Moscow continue to disagree on the issue of the Strategic Defence Initiative or the Star Wars. While the US Administration is determined to push ahead full steam with the SDI, the Soviet Union has been calling for ways to strengthen the ABM treaty — it wants the two sides to adhere to the 1972 treaty for a period of 10 years.

However, even in the realm of space weapons, there seems to be some more flexibility on the part of Moscow — if all along there was the insistence that SDI should be confined to the laboratories, it is now amenable to some very limited testing.

The following are the existing disarmament treaties:

Limited Test Ban Treaty: Signed on August 5, 1963 by the U.S. and the Soviet Union and since co-signed by 140 other countries, the Limited Test Ban Treaty outlaws nuclear tests under water, in the atmosphere or in space. Verification is mostly by satellite; both Washington and Moscow have accused the other of breaching the treaty by allowing radioactive leaks into the atmosphere.

Outer Space Treaty: Signed on January 27, 1967 by the two global powers and subsequently by 85 other States, the Outer Space Treaty bans "nuclear arms or other weapons of mass destruction" from space. The treaty is mostly verified by radar. There have been no breaches so far, but SDI would be a massive one.

Non-Proliferation Treaty: The NPT was signed on July 1, 1968 by the two global powers, and later by 114 other countries. It restricts nuclear weapons to the Soviet Union, the U.S., Britain, France and China. Verification is by the International Atomic Energy Agency.

Anti-Ballistic Missile Treaty: The ABM Treaty was signed on May 26, 1972 by the U.S. and the Soviet Union. Mostly verified by satellite cameras, this pact in its revised form, limits

ABC OF WAR AND PEACE

Here is a list of the most essential acronyms for a student of War and Peace:

ALCM: Air-Launched Cruise Missile.
ABM: Anti Ballistic Missile.
ASAT: Anti Satellite Satellite.
BMD: Ballistic Missile Defense.
C3: Command, Control and Communication.
CD: Conference on Disarmament.
CIA: Central Intelligence Agency.
COPUOS: Committee on the Peaceful Uses of Outer Space.
DOD: Department of Defence.
ELP: Extremely Low Frequency.
EAM: Emergency Action Message.
EMP: Electro-Magnetic Pulse
GPS: Global Positioning System.
ICBM: Inter-Continental Ballistic Missile.
IKON: Improved Key hole photo reconnaissance.
IMEWS: Integrated Missile Early Warning Satellite.
INF: Intermediate range Nuclear Force.
IONDS: Integrated Operational Nuclear Detection System.
MAD: Mututal Assured Destruction.
MBFR: Mutual and Balanced Force Reduction.
NAVSTAR: Navigational Satellite.
NORAD: North American Aerospace Defence Command.
NASA: National Aeronautics and Space Administration.
NSA: National Security Agency.
RORSAT: Radar Ocean Reconnaissance Satellite.
SAC: Strategic Air Command.
SAR: Synthetic Aperture Radar.
SIGINT: Signals Intelligence.
SONAR: Sound Navigation And Ranging.
START: Strategic arms control negotiations.
SLBM: Submarine Launched Ballistic Missiles.
SLCM: Sea-launched Cruise Missiles
TACAMO: Take charge And Move Over
VLF: Very Low Frequency

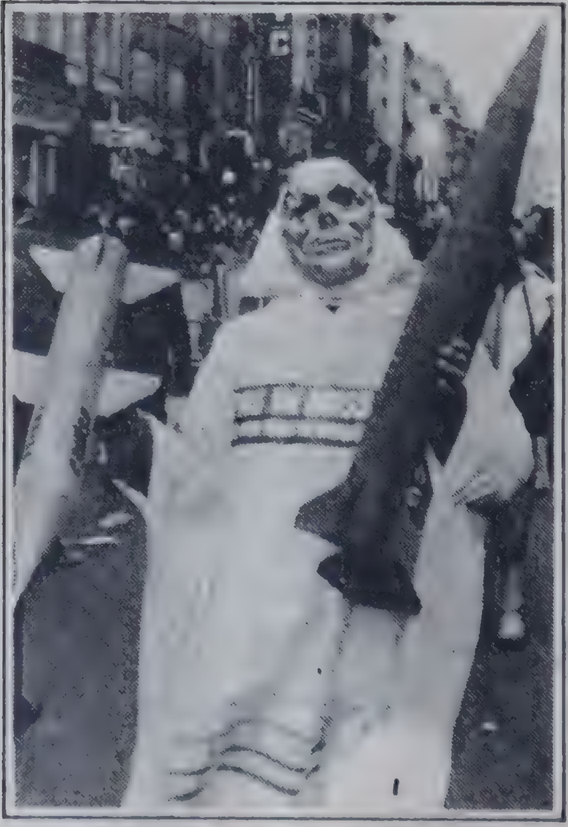
both countries to one ABM site, either in the capital or on a border, with no more than 100 launchers. Moscow says SDI research is a breach, but Washington says the pact does not forbid research.

SALT-1: Also signed by the U.S. and the Soviet Union on May 26, 1972, this treaty froze some warhead totals and reduced planned increase in others. It was mostly verified by satellite.

Threshold Test Ban Treaty: Signed by the two global powers on July 3, 1974, this limits underground nuclear tests to 150 kilotons and is verified by seismic sensing, like earthquakes. Each side has accused the other of breaches.

Peaceful Nuclear Explosions Treaty: Signed by the U.S. and the Soviet Union on May 28, 1976, this permitted on-site inspections of peaceful nuclear explosions, which the Soviet Union uses for tunnel and dam building. Nuclear explosions for construction are forbidden in the U.S.

SALT-2: This treaty was signed by the two global powers on June 18, 1979 and so far has been observed — although not ratified — by the U.S. It was the first treaty to bring about real cutbacks in nuclear inventories, but had the feature of limiting "launchers" rather than warheads, thus encouraging MIRV (Multiple Independently-Targeted Re-entry Vehicle) technology. SALT-2 has been mostly verified by satellite.



Anti-nuclear protest in Europe.

The existing non-nuclear treaties are:

Geneva Protocol: Signed by most major countries in Geneva on June 17, 1925, and now co-signed by a total of 119 States, this prohibits the use of poisonous gases or biological weapons. Verification of stocks has not been possible. The protocol was broken by Italy in Ethiopia in 1935 and 1936 and by Japan in China in 1936. Britain planned to "gas the beaches" if Germany invaded in 1940. The U.S. used defoliants and possibly cancerous herbicides in Vietnam, while Moscow is alleged to have supplied chemical weapons to Kampuchea and Afghanistan. Iraq used chemical weapons in 1984 and 1985 against Iranian troops on its soil.

Biological Weapons Convention: Signed by the two global powers on April 10, 1972 and since co-signed by 88 other countries. It bans production and stockpiling of biological weapons. No breaches have been alleged so far.

The following are the treaties under negotiations:

Strategic Arms Reduction Treaty: The START talks continue intermittently in Geneva. If successful, the treaty would lead to substantial reductions in nuclear weapons stocks.

Anti-Satellite Weapons Ban: These global power talks to prohibit all anti-satellite weaponry were suspended by the U.S. in 1980 on the grounds that the Soviet Union already had anti-satellite weapons and that a freeze would be to Moscow's advantage.

Comprehensive Test Ban: These tripartite talks involving the two global powers and Britain were also suspended by the U.S. in 1980. They were intended to prohibit all nuclear explosions, but Washington complained that full verification was not possible. The Soviet Union began a voluntary unilateral moratorium in August 1985 and then extended it until January 1, 1987 in the hope of persuading the U.S. to join it, apparently in a

For Whom the Bell Tolls

Between three and five million people were killed in 36 wars raging around the world in 1986, according to the Stockholm International Peace Reasearch Institute.

In a yearbook titled World Armaments and Disarmament, *the Institute said 1986 was a year of extreme contrasts in the nuclear weapons field.*

Although the United States and the Soviet Union agree in principle to reduce their nuclear weapons, they continued their arms modernisation programmes.

The leaders of Britain and France made it clear during 1986 that they had no intention of eliminating their nuclear forces, regardless of what the superpowers did.

Twenty-three nuclear test blasts were conducted in 1986, the fewest since 1960.

The United States conducted 14, France eight, and Britain conducted one jointly with the U.S.

The Soviet Union observed its unilateral moratorium on nuclear testing throughout the year. China did not conduct any nuclear weapons test in 1986, and in March announced that it would not test in the atmosphere in future.

Referring to space weapons, the year book said military uses of space developed along two lines in 1986: Satellite launches and the development of systems for strategic defence purposes.

The Soviet Union launched reconnaissance satellites with longer lifetime than previously. The number of such satellites launched in the future would presumbaly decrease if this trend continued, the year book said.

Continued tests in space would add man-made debris that increases the risk of collision with satellites, it said. Several such incidents have already occurred.

Arms transfer scandals during 1986 characterised the changing world arms market.

Despite severe economic problems, Third World countries received about two-thirds of the global flow of major weapons. With the United State's 33.3 per cent share and the Soviet Union's 31.4 per cent, the two countries dominated global arms sales.

Spending on military research and development, which is heavily concentrated in a few developed countries, had risen rapidly in the 1980s, the SIPRI said. It could be one-third higher in 1986 than it was in 1980.

Perhaps the only real success in arms control during the year was the conclusion of the conference on disarmament in Europe, in which 33 European nations and the United States and Canada agreed to a set of politically binding measures regarding military activities in Europe, the Institute observed.

bid to stop the development of Midgetman and the SDI.

Chemical Weapons Ban: These U.S. Soviet talks were suspended by the U.S. in 1982 on the grounds that the Soviet Union was "expanding" chemical weapon manufacture, forcing it to do likewise. Experts believe if the talks are revived, they may reach agreement, but will have difficulty getting smaller powers to co-sign. A chemical weapons ban is currently under discussion in the 40-nation Conference on Disarmament in Geneva.

NAM—BULWARK OF PEACE

The 25-year old Non-Aligned Movement seems to have come of age. Being the greatest peace movement on earth holding together 101 nations representing two thirds of the humanity, NAM shed its passive role to declare "the final assault on apartheid" in 1986.

NAM held the 25th anniversary session in African soil specially with this aim. Harare, Capital of Zimbabwe, one of the frontline states, hosted the 7 day summit, which also saw the Indian Prime Minister Rajiv Gandhi handing over the Chairmanship of the movement for the next three years to Prime Minister Robert Mugabe.

Since the founding of the movement at Belgrade on September 1, 1961, the NAM has come to represent the voice of an overwhelming segment of mankind. Since its inception, it has emerged as the bulwark of peace, a shield against external pressures and a catalyst for a new world economic order based on equality and justice.

Harare summit signalled an intensification of the battle against apartheid, vestiges of colonialism, foreign interference and unjust economic order.

Among the major conflicts that drew the attention of the NAM summit was the six year old war between Iran and Iraq. Nearly every major trouble spot in the world featured in NAM summit – Lebanon, Afghanistan, Nicaragua, Libya, Sri Lanka, Morocco, Vietnam and Kampuchea.

Harare summit adopted a package of stiff "economic measures" against South Africa to compel the racist regime to dismantle its obnoxious system of apartheid.

A special declaration on Southern Africa, unanimously approved by the summit, made it clear that the measures contained in the package would be applied against Pretoria pending the adoption of "comprehensive and mandatory" sanctions by the United Nations Security Council.

The summit urged the United Nations to take such a step without any further loss of time.

The package contained, among other measures, prohibition of transfer of technology to South Africa, cessation of export, sale or transport of oil, snapping of air links, and termination of any visa free entry privileges and promotion of tourism to South Africa.

The summit demanded a special session of the UN General Assembly to ensure the independence of Namibia. It also set up a committee comprising member countries to plead the case of Namibia in the UN.

It set up a committee of Foreign Ministers to visit the United States, Britain, West Germany and Japan to persuade the governments to agree to the imposition of sanctions against South Africa.

India is included in both the committees.

The countries agreed to contribute generously to the proposed solidarity fund for Southern Africa. They rejected the US policy of constructive engagement with Pretoria.

The summit adopted "the Harare appeal on disarmament" and the reports of the political and economic committees.

Zimbabwean Prime Minister Robert Mugabe, who took over as NAM chairman from Prime Minister Rajiv Gandhi, in his closing address made an appeal to Iran and Iraq to put an end to their tragic conflict.

The need for south-south co-operation was stressed and Dr. Mugabe welcomed the establishment of the independent commission of the south under the chairmanship of former Tanzanian President Julius Nyrere.

The Harare summit demanded immediate intensification of the struggle against 10 identified evils afflicting the international community – imperialism, colonialism, neocolonialism, apartheid, racism, zionism, all forms of destiabilisation, foreign occupation, domination and hegemonism.

Further, short of supplying arms, the leaders of the 101 non-aligned countries pledged to extend all support, in every other form to the liberation movement in Southern Africa.

On the economic front they called for a halt to the growing protectionism and mounting external debt crisis.

A 25-member committee of Foreign Ministers has been constituted to work out a plan of action to bring about an international economic order based on justice and equality.

The summit called for the creation of an *Africa fund*. A nine-member committee headed by India has been constituted for the mobilisation of the fund, to extend support to the front line states and strengthen their economies in the face of sanctions and possible economic retaliation by South Africa.

The committee for mobilising and operating the Africa fund will be chaired by Mr Gandhi. The vice-chairman will be Zambian President Kenneth Kaunda. The other members are Algeria, Zimbabwe, Nigeria, Congo, Argentina, Yugoslavia and Peru.

NAM, torch bearer of the third world which views itself as an alternative bloc of nations to the two superpowers and their satellites, was established on September 1, 1961, in Belgrade, Yugoslavia. Since then, its membership has quadrupled to encompass two-fifths of the world's people.

Jawaharlal Nehru former Prime Minister of India had been its first and greatest apostle. As early as March 1947, Nehru said, "For too long, we of Asia have been petitioners in western courts and chancellories. That story must now belong to the past. We propose to stand on our own feet... We do not intend to be playthings of others." It was in fact the late V. K. Krishna Menon, India's delegate to the UN and later Defence Minister, who coined the very expression 'Non-Aligned'.

Here is the background that led to the formation of the Non-Aligned Movement. After the second world war, the USSR and the USA emerged as superpowers. Meanwhile colonial imperialism also started to recede. India and Burma became independent in 1947. Indonesia followed suit in 1949. In Africa many big countries threw off the colonial yoke. Lesser countries in Africa, Asia and the Pacific also became independent one after the other.

The superpowers tried to win over as many new States as possible to one or the other of them. This attempt brought in what has been called a 'cold war' between USSR, which championed the socialist countries and USA who posed as the leader of free democracies. It is against this cold, bleak atmosphere that Nehru put forth his idea of non-alignment.

A conference of likeminded Asian countries became the forum for the birth of the movement. The conference at Bandung (Indonesia) in April 1955 opened the era of a common agreement among all Asian nations to keep aloof from international complications and to settle matters among themselves on certain principles. The principles adopted at the Bandung Conference were later known collectively as. *Panch Sheel. They were: (i) Mutual respect for each other's territorial integrity and sovereignty, (ii) Mutual non-aggression, (iii) Mutual non-interference in each other's affairs, (iv) Equality and mutual benefit and (v) Peaceful co-existence.*

The ideas propounded at Bandung were given a practical shape at Brioni in Yugoslavia at a meeting of Nehru (India), Marshal Tito (Yugoslavia) and Col. Nasser (Egypt) in July 1956. In pursuance of the decisions taken at this informal meeting of the three great leaders, the first Summit Meeting of the Non-Aligned countries took place at Belgrade (Yugoslavia) in Sept. 1961.

The growth of the Movement was phenomenal. From a mere 25 countries who joined the Belgrade summit (1961) the number increased to 101 at the Delhi summit (1983). It rose to 101 by September, 1985 when the Non-Aligned Foreign Ministers met to decide on the venue of the 8th Summit in 1986.

The basic principle of non-alignment was explained by Nehru thus "...we propose as far as possible to keep away from power blocs or groups aligned against each other... we propose to keep on the closest terms of friendship with all countries. We shall be friends of America and intend co-operating with them. We intend also to co-operate fully with the Soviet Union."

A list of previous summits:

Belgrade, September 1–6, 1961. President Josip Broz Tito of Yugoslavia was chairman and 25-member countries took part.

Cairo, Egypt, October, 5–10, 1964. The Egyptian president, Mr. Gamal Abdel Nasser was chairman and 47 countries participated. Eighteen new members from Africa reflected the breakaway from colonial rule.

Lusaka, Zambia, September 8–10, 1970. President Kenneth Kaunda, one of Africa's new leaders and now an elder statesman in the continent, was chairman and 53 nations took part.

Algiers, Algeria, September 5–9, 1973. The Algerian President, Mr. Houari Boumedienne was chairman. Participating were 75 countries with full membership, along with 15 guerilla movements from 12 countries.

Colombo, Sri Lanka, August 11–14, 1976. The Sri Lankan Prime Minister, Mrs. Sirimavo Bandaranaike, the non-aligned movement's first woman leader, was chairman and 85 countries took part.

Havana, Cuba, September 3–9, 1979. The Cuban president, Mr. Fidel Castro was chairman of the first non-aligned summit in Latin America. Ninety-four countries were represented as full members.

New Delhi, March 7–11, 1983. The summit of 101 members was chaired by the Prime Minister, Mrs. Indira Gandhi. Mrs. Gandhi, who was assassinated in October was succeeded as premier and non-aligned chairman by her son, Mr. Rajiv Gandhi.

Cyprus will be the next venue of the NAM Foreign Ministers' Meeting in 1988, where the question of the NAM Chairmanship for the ninth Summit, scheduled for 1989, will be decided.

THE UNITED NATIONS

The United Nations past 40, whatever its failures, still remains the hope and conscience of the world, more especially of the smaller nations among its 159 members. The UN and its 17 independent specialised agencies and 14 major Programmes and Funds embrace almost every man in every corner of the globe.

On the occasion of 40th anniversary, 100-odd Presidents and Prime Ministers, Kings and dictators gathered at the 39-storied world organisation headquarters by the New York's East River, in September 1985.

The historic anniversary session of the General Assembly was attended by U.S. President Ronald Reagan, British Prime Minister Margarette Thatcher and Prime Minister Rajiv Gandhi. The Soviet Union was represented by their new Foreign Minister, Eduard Shevardnadze.

The UN was founded to maintain peace and security in a world that had just passed through a devastating war and nuclear bombing.

Forty years later, although there has been no world war yet, numerous smaller wars and conflicts still rage or smoulder and the powers are divided over the threat posed by the nuclear weapons.

The world is also riven by differences between the rich and the poor—between developed nations and developing nations—over the need to bring about a new international economic order.

A major issue that dominated the anniversary session was the apartheid regime in South Africa which has been the scene lately of the increasingly bloody confrontations between the depressed African people and the minority white rulers.

The common theme in the speeches of Rajiv Gandhi, Chinese Premier Zhao Ziyang, and Dumas, the French Foreign Minister, among others, was the imperative need for mankind to step back from the nuclear brink. The US President, while not hiding his distaste for Marxism-Leninism's "war with people" around the world, said he sought a "fresh start" in US-Soviet relations despite deep and abiding differences. Soviet leader Mikhail Gorbachev, in his message called for ending the arms race on Earth and preventing it in space, in an obvious reference to Reagan's *Star Wars* programme.

Rajiv Gandhi pointed to the "wide cracks" showing in the present world order and the contradiction between international order and nuclear weapons, freedom and racism, science and poverty. He commended the six-nation Delhi declaration issued earlier on nuclear disarmament as a "practical programme". Mr. Dumas, however, said that France would maintain its independent nuclear defence system until the superpowers give a clear lead in nuclear disarmament.

Japanese Prime Minister Nakasone "apologised" for Japan's "ultranationalism" that had led to World War II and promised to fight the revival of militarism in his country. Rajiv spoke for the non-aligned movement and the third world in urging a new consensus on development that will banish hunger and poverty.

Even though there were 150 items on the agenda of the anniversary session, everything submerged in the rhetoric of the world leaders. Not even a consensus declaration could materialise.

UN also celebrated the 25th anniversary of its decolonisation declaration consecutively with the territory it has tried hardest to liberate still far from independence. South-West Africa or Namibia represents one of the organisation's great frustrations among what is generally viewed as its successful effort to bring colonies to indepdendence. Since 1960, when the UN issued the declaration on de-colonisation, 59 territories inhabited by 80 million people have become independent or opted to join the comity of independent states.

United Nations, an association of sovereign states bound by a Charter to maintain international peace and security came into being on 24th Oct. 1945. The Charter was signed by the delegates of 50 nations on 26th June, 1945 at San Francisco. The UN has now on its rolls almost all the independent countries of the world.

For a long time China was represented in the UN by Taiwan which styled itself Nationalist China. Communist China which truly represented China was kept out of the UN mainly on account of the US veto.

This anomaly was removed in 1971 by admitting Communist China as the representative of all China in the UN. Red China thus became a permanent member of the Security Council. Taiwan not only lost its permanent seat in the Council but also its primary membership of the UN.

In December 1974 the UN adopted a *Charter of Economic Rights*. This charter consisting of 34 articles is a landmark in the history of UN. It includes the right of each state "to freely exercise full permanent sovereignty over its wealth and natural resources, to regulate and exercise authority over foreign investments within its national jurisdiction and to nationalise, expropriate or transfer the ownership of foreign property".

The 1974 declaration of rights recognised the imperative necessity of reducing disparities between developed, developing and undeveloped countries of the world. It envisaged a New International Economic Order (NIEO). To achieve this new order the UN Development Programme (UNDP) was inaugurated in 1975 under a Director General of Development.

Principal Organs of the UN are: General Assembly, Secretariat, Security Council, Trusteeship Council, Economic and Social Council and International Court of Justice.

Head Quarters: First Avenue, UN Plaza, New York City, N.Y., USA.

General Assembly. The General Assembly of the UN is the nearest that the world has yet come to the visionary 'Parliament of Man'. The Assembly consists of the representatives of all the member states. Each state has one vote, but many send 5 representatives. The General Assembly meets at least once in a year. Special sessions may be summoned by the Secretary General, on a request by the Security Council.

The General Assembly passes the annual budget of the UN and determines the contribution payable by each member. It receives and considers the reports of the special committees including the Security Council.

A mere loaf of bread...

I was told by one of the World Health Organization experts: "Modern Western man is too inactive. He just doesn't do enough. The human body has been created for a certain amount of physical activity. Normal life means the intake of a certain amount of food which must be balanced with the output of a certain amount of energy."

"We are so inactive," continued the WHO expert, "that we cannot eat little enough. People think two extra pieces of bread per day is neither here nor there. But two extra pieces of bread may make a great difference... And remember: One hundred extra and superfluous calories per day means 36,500 calories per year."

I asked him what a modern executive should do. What sort of life he should lead.

"If he is used to a sporting life, including jogging, he should go on. If not, he should do something. Walking, swimming, even — provided his heart is all right — climbing stairs will do good. He must lead a more physical life than most of them do."

He stopped for a moment. "But it must be remembered that exercise has no lasting effect. It does you no retrospective good. If you stop, you are no better off than someone who has never done it. So you may as well save yourself the trouble. On the other hand, if you enjoy it and want to derive real benefit, go on and on and on, until you collapse."

"I realize that this is a joke," he said gloomily. "The point is that one is more likely to collapse if one does nothing than if one leads an active life, in moderation."

— Excerpted by The Observer (London) from "The Riches of the Poor: A Journey Round the World Health Organization" by George Mikes, who died in 1987 aged 75.

Important questions are decided by a two-thirds majority and other questions by a smiple majority.

The General Assembly elects the non-permanent members of the Security Council, the members of the Economic and Social Council and the elected members of the Trusteeship Council. The Judges of the International Court of Justice are elected by the General Assembly, in conjunction with the Security Council. The General Assembly elects its own President and Vice Presidents every year.

Present President: Peter Florin, GDR.

2. Security Council consists of 15 members, each of which has 1 vote. There are 5 permanent and 10 non-permanent members elected for a 2-year term by a two-thirds majority of the General Assembly. The permanent members have the power to veto any move.

Retiring members are not eligible for immediate re-election. Any other member of the United Nations will be invited to participate without vote in the discussion of questions specially affecting its interests.

The Presidency of the Security Council is held for 1 month in rotation by the member states in the English alphabetical order of their names.

Permanent Members: China, France, USSR, UK, USA. *Non-permanent Members:* Argentina, Japan, West Germany, Italy, Zambia, Denmark, Madagascar, Thailand, Trinidad and Tobago, (until 31 Dec. 1988), Nepal, Brazil, Algeria, Senegal and Yugoslavia (until 31 Dec. 1989).

3. Economic & Social Council is responsible under the General Assembly for carrying out the functions of the United Nations with regard to international economic, social, cultural, educational, health and related matters.

The Economic and Social Council consists of 54 Member States elected by a two-thirds majority of the General Assembly. The Council has the following Regional Economic Commissions: ECE (Economic Commission for Europe, Geneva); ESCAP (Economic and Social Commission for Asia and the Pacific. Bangkok); ECLA (Economic Commission for Latin America, Santiago, Chile); ECA (Economic Commission for Africa, Addis Ababa). ECWA (Economic Commission for Western Asia, Baghdad).

4. Trusteeship Council. The Charter provides for an international trusteeship system to safeguard the interests of the inhabitants of territories which are not yet fully self-governing and which may be placed thereunder by individual trusteeship agreements. These are called trust territories.

All of the original 11 trust territories except one, the Pacific Islands (Micronesia), administered by the USA, have become independent or joined independent countries.

5. International Court. The International Court of Justice was created by an international treaty, the Statute of the Court, which forms an integral part of the United Nations Charter. All members of the United Nations are *ipso facto* parties to the Statute of the Court. There are 15 judges.

India's Dr. Nagendra Singh is the present President of the Court.

The Court has its seat at The Hague, but may sit elsewhere whenever it considers this desirable. The expenses of the Court are borne by the UN.

6. Secretariat is composed of the Secretary-General, who is the chief administrative officer of the organization, and an international staff appointed by him under regulations established by the General Assembly. However, the Secretary General, the High Commissioner for Refugees and the Managing Director of the Fund are appointed by the General Assembly. The first Secretary General was Trygve Lie (Norway), 1946-53; the second, Dag Hammarskjold (Sweden), 1953-61; the third, U. Thant (Burma), 1961-71; the fourth, Kurt Waldheim (Austria), 1972-81.

The financial year coincides with the calendar year; accountancy is in US$. Budget for 1984-85, $1,587,158,000.

Secretary-General: *Javier Peres de Cuellar (Peru),* appointed on 1 Jan. 1982 for a 5-year term.

The Secretary-General is assisted by Under-Secretaries-General and Assistant Secretaries-General.

U.N. System. The bulk of the work of the UN, measured in terms of money and personnel, is aimed at achieving the pledge made in Article 55 of the Charter to 'promote higher standards of living, full employment and

UN: Milestones in Peace

1945: On 24 October the United Nations is set up.

1947: The General Assembly adopts a plan for Palestine which would, at the end of the British mandate in 1948, partition it into an Arab state and a Jewish state with Jerusalem under UN administration.

1949: Consultations lead to resolution of crisis over access of the West to the divided city of Berlin. A UN agency is created to look after the welfare of Palestinian refugees.

1950: The Security Council calls on member states to help the southern part of Korea repel the invasion from the north.

1951: Convention of refugees is adopted spelling out the rights and international standards for their treatment.

1952: The General Assembly decides to take up the entire question of apartheid.

1953: Armistice in Korea results from UN initiatives.

1954: Quiet and successful negotiations are made for the release of American airmen held POWs in China. ECOSOC Regional Commission for Europe takes up trade relations between different economic systems. The UN High Commissioner for Refugees wins the Nobel Peace Prize.

1955: First International conference on the peaceful uses of atomic energy held in Geneva initiates a broad range of co-operation in the field.

1956: War in the Middle East over the Suez Canal ends with the deployment of a UN peace-keeping force in Sinai.

1958: A UN observer group helps defuse the Lebanon crisis. Another UN agency, the Inter Governmental Organization, sets safety standards for shipping. French Togoland becomes independent after a UN-supervised plebiscite.

1959: UN-supervised plebiscite in the British Cameroons results in a part of the territory being incorporated in Nigeria and the other into the Cameroons.

1960: At the request of the newly independent state of Congo, the largest ever UN peace-keeping force is sent there.

1962: UN plays a key role in resolving the US-Soviet confrontation over nuclear missiles in Cuba. UN takes over administration of West New Guinea before transferring power to Indonesia. An observer mission is sent to aid peace efforts in Yemen.

1963: The UN and Food and Agricultural Organisation (FAO) set up the World Food Programme for needy countries. The Security Council calls for voluntary arms embargo against South Africa.

1964: A UN peace-keeping force is sent to Cyprus.

1965: A UN observer mission helps disengagement of forces after war between India and Pakistan. UNICEF is awarded the Nobel Peace Prize.

1966: The Security Council imposes mandatory sanctions against Southern Rhodesia where a racist white minority government unilaterally declared independence from Britain in 1965.

1967: After war erupts again in the Middle East, the UN adopts a resolution calling for withdrawal of forces from occupied territories and recognises the right to security of all states in the area.

1970: The General Assembly adopts the first internationally agreed set of principles on sea-bed and ocean floor zones beyond national jurisdiction.

1971: The International Court of Justice declares "illegal" the continued presence of South Africa in Namibia. China becomes a "lawful" member state of the UN. Bahrain becomes independent after the UN helps resolve the Iran-UK dispute on the status of the territory. UN organises massive relief measures for Bangladeshi victims of the conflict with Pakistan.

1973: A new peace-keeping force takes up position in the Sinai and Golan Heights.

1977: The Security Council makes arms embargo against South Africa mandatory.

1978: Security Council adopts the plan put forward by five Western countries for the independence of Namibia. A UN peace-keeping force moves into Lebanon.

1980: A campaign co-ordinated by the World Health Organisation (WHO) results in the eradication of smallpox from the world.

1982: The convention on the Law of the Sea is adopted.

1983: The Secretary-General visits Southern Africa for consultations on Namibia's independence.

1984: The General Assembly adopts a declaration on the critical economic situation and famine in Africa.

1985: Massive famine relief measures are taken up for the people of Africa.

1986: UN organises the earthrun through 110 countries for the cause of peace.

1987: The three-week UN conference on disarmament and development in New York: The Secretary-General visits Iran and Iraq to try to end the 7 year old Gulf War.

conditions of economic and social progress and development.'

In addition to the 17 independent specialized agencies, there are some 14 major United Nations programmes and funds devoted to achieving economic and social progress in the developing countries.

UNDP—United Nations Development Programme is the world's largest agency for multilateral technical and pre-investment co-operation. It is the funding source for most of the technical assistance provided by the United Nations system, and UNDP is active in almost 150 countries and territories and in virtually every economic and social sector. UNDP assistance is provided only at the request of Governments and in response to their priority needs, integrated into over-all national and regional plans.

UNICEF: United Nations Children's Fund, established in 1946 as United Nations International Children's Emergency Fund to deliver post-war relief to children, later renamed United Nations Children's Fund, concentrates its assistance on development activities aimed at improving the quality of life for children and mothers indeveloping countries, during 1983, UNICEF was working in over 110 countries with a child population of some 1,300 m.

Executive Director: James P. Grant (USA)

UNFPA—The UN Fund for Population Activities, carries out programmes in over 130 countries and territories. The Fund's aims are to build up capacity to respond to needs in population and family planning; to promote awareness of population problems in both developed and developing countries and possible strategies to deal with them; to assist developing countries at their request in dealing with population problems. More than 25% of international population assistance to developing countries is channelled through UNFPA.

Executive Director: *Nafis Sadik (Pakistan).*

Relief Agencies. Humanitarian relief to refugees and victims of natural and man-made disasters is also an important function of the UN system. Among the organizations involved in such relief activities are the Office of the UN Disaster Relief Co-ordinator (UNDRO), the Office of the UN High Commissioner for Refugees (UNHCR) and the UN Relief and Works Agency for Palestine Refugees in the Near East (UNRWA).

UNRWA was created by the General Assembly in 1949 as a temporary non-political agency to provide relief to the nearly 750,000 people who became refugees as a result of the disturbances during and after the creation of the State of Israel in the former British Mandate territory of Palestine.

Commissioner-General: *Olof Rydbeck (Sweden).*

UNHCR—The office of the United Nations High Commissioner for Refugees was established by the UN General Assembly with effect from 1 Jan. 1951, originally for three years. Since 1954, its mandate has been renewed for successive five year periods.

For its work on behalf of refugees around the world, UNHCR was awarded the Nobel Peace Prize in 1955 and again in 1981.

Headquarters: Palais des Nations, 1211, Geneva 10, Switzerland.

High Commissioner: *Poul Hartling (Denmark).*

Specialized Agencies. IAEA—The International Atomic Energy Agency, came into existence on 29 July 1957. Its statute had been approved on 26 Oct. 1956, at an international conference held at UN Headquarters, New York. A relationship agreement links it with the United Nations. The IAEA had 112 member states in 1983.

Headquarters: Vienna International Centre, PO Box 100, A-1400 Vienna, Austria.

a2f26 Director-General: Hans Blix (Sweden).

UNIDO: United Nations Industrial Development Organization. Agency promoting industrial co-operation and co-ordinating all UN operations in matters of industrial promotion It provides developing and underdeveloped countries with advice on all aspects of industrial policy. Converted into a specialised agency of UN in 1985.

Headquarters: Vienna International Centre, Austria.

Director-General: Domingo Stazon (Philipines)

ILO—International Labour Organization established in 1919 as an autonomous part of the League of Nations, is an intergovernmental agency with a tripartite structure, in which representatives of governments, employers and workers participate. In 1969 it was awarded the Nobel Peace Prize. In 1984 it numbered 151 members.

The ILO consists of the International Labour Conference, the Governing Body and the International Labour Office.

Headquarters: International Labour Office, CH-1211 Geneva 22, Switzerland.

Director-General: Francis Blanchard (France). *Chairman of the Governing Body:* B. G. Deshmukh (India).

FAO—Food and Agriculture Organization. The UN Conference on Food and Agriculture in May 1943, at Hot Springs, Virginia, set up an Interim Commission in Washington in July 1943 to plan the Organization, which came into being on 16th October 1945.

FAO sponsors the World Food Programme (WFP) with the UN.

Headquarters: Viale delle Terme di caracalla, Rome, Italy.

Director-General: Dr. Erdouard, Saouma (Lebanon).

UNESCO—United Nations Educational, Scientific and Cultural Organization. A Conference for the establishment of an Educational, Scientific and Cultural Organization of the United Nations was convened by the Government of the UK in association with the Government of France, and met in London, 1 to 16 Nov. 1945. UNESCO came into being on 4 Nov. 1946.

Director General: Federico Mayor Zaragoza (Spain)

WHO—World Health Organization. An International Conference, convened by the UN Economic and Social Council, to consider a single health organization resulted in the adoption on 22 July 1946 of the constitution of the World Health Organization. This constitution came into force on 7 April 1948.

Headquarters: 1211 Geneva 27. Regional Offices: Alexandria, Brazzaville, Copenhagen, Manila, New Delhi and Washington.

Director-General: Dr. Halfdan T. Mahler (Denmark).

IMF—International Monetary Fund. The International Monetary Fund was established on 27 Dec. 1945 as an independent international organization and began operations on 1 March 1947; its relationship with the UN is defined in an agreement of mutual co-operation which came into force on 15 Nov. 1947. The first amendment to the Fund's articles creating the Special Drawing Rights (SDR) took effect on 28 July 1969 and the second amendment took effect on 1 April 1978.

Headquarters: 700 19th St. NW, Washington, D.C., 20431. Offices in Paris and Geneva.

Managing Director: Jacques de Larosiere (France).

World Bank. IBRD—International Bank for Reconstruction and Development. Conceived at the Bretton Woods Conference, July 1944, the 'World Bank' began operations in June 1946. Its purpose is to provide funds and technical assistance to facilitate economic development in the poorer countries.

Headquarters: 1818 H.St. NW Washington, D.C.

President: Barbar Conable (USA).

IDA—International Development Association. A lending agency which came into existence on 24 Sept. 1960. Administered by the World Bank, IDA is open to all members of the Bank.

IFC—International Finance Corporation, an affiliate of the World Bank, was established in July 1956. Paid-in capital at 30 June 1984 was $544.2m, subscribed by 125 member countries. In addition, it has accumulated earnings of $230.1 m. IFC supplements the activities of the World Bank by encouraging the growth of productive private enterprises in less developed member countries.

President: Barbar Conable (USA).

ICAO—International Civil Aviation Organization. The Convention providing for the establishment of the International Civil Aviation Organization was drawn up by the International Civil Aviation Conference held in Chicago from 1 Nov. to 7 Dec. 1944. A Provisional International Civil Aviation Organization (PICAO) operated for 20 months until the formal establishment of ICAO on 4 April 1947.

Headquarters: 1000 Sherbrooke St. West, Suite 400, Montreal, Quebec, Canada H3A $2R^2$.

President: Dr. Assad Kotaite (Lebanon). *Secretary-General:* Yves Lambert (France).

Communication. UPU—The Universal Postal Union, was established on 1 July 1875, when the Universal Postal Convention adopted by the Postal Congress of Berne on 9 Oct. 1874 came into force. The UPU was known at first as the General Postal Union, its name being changed at the Congress of Paris in 1878. In 1980 there were 158 member countries.

Headquarters: Weltpoststrasse r, 3000 Berne 15, Switzerland.

Director-General: Mohamed Ibrahim Sobhi (Egypt).

ITU—International Telecommunication Union. The International Telegraph Union, founded in Paris in 1865, and the International Radiotelegraph Union, founded in Berlin in 1906, were merged by the Madrid Convention of 1932 to form the International Telecommunication Union. ITU came into being on 1 Jan. 1934.

Headquarters: Place des Nations, 1211 Geneva, Switzerland.

Secretary-General: Mohammed Mili (Tunisia).

WMO—World Meteorological Organization. A Conference of Directors of the International Meteorological Organization (set up in 1873), meeting in Washington in 1947, adopted a Convention creating the World Meteorological Organization. The WMO was formally established on 19 March 1951, when the first session of its Congress was convened in Paris.

Headquarters: Case Postale 5, CH-1211, Geneva 20, Switzerland.

Secretary-General: G.O.P. Obasi (Nigeria).

IMO—The International Maritime Organization, until 1982 known as Inter-Governmental Maritime Consultative Organization (IMCO), was established as a specialized agency of the UN by a convention drawn up at the UN Maritime Conference held at Geneva in Feb./March 1948.

Headquarters: 4 Albert Embankment, London SEI 7SR.

Secretary-General: C. P. Srivastava (India).

World Trade. GATT—The General Agreement on Tariffs and Trade was negotiated in 1947 and came into force on 1 Jan. 1948. Its 23 original signatories were members of a Preparatory Committee appointed by UN Economic and Social Council to draft the charter for a proposed International Trade Organization. Since this charter was never ratified, the General Agreement, intended as an interim arrangement, has instead remained as the only international instrument laying down trade rules accepted by countries responsible for most of the world's trade. In Nov. 1983 there were 90 contracting parties, with a further 31 countries participating under special arrangements.

Headquarters: Centre William Rappard, 154 rue de Lausanne, 1211 Geneva 21, Switzerland.

Director-General: Arthur Dunkel (Switzerland).

WIPO—World Intellectual Property Organization. The Convention establishing WIPO was signed at Stockholm in 1967 by 51 countries, and came into force in April 1970. In Dec. 1974 WIPO became a specialized agency of the UN.

Headquarters: 34, Chemin des Colombettes, 1211 Geneva 20, Switzerland.

Director-General: Arpad Bogsch (USA).

IFAD—International Fund for Agricultural Development. The establishment of IFAD was one of the major actions proposed by the 1974 World Food Conference. The agreement for IFAD came into force on 30 Nov. 1977 following attainment of initial pledges of $1,000 m. and the agency began its operations the following month.

Headquarters: 107 Via del Serafico, Rome, Italy.

President: Abdelmushin Al-Sudeary (Saudi Arabia).

Members of the UN

159 members as in 1987

Member	Year of Admission
Afghanistan	1946
Albania	1955
Algeria	1962
Angola	1976
Antigua & Barbuda	1981
Argentina*	1945
Australia*	1945
Austria	1955
Bahamas	1973
Bahrain	1971
Bangladesh	1974
Barbados	1966

Belgium★	1945
Belize	1981
Benin†	1960
Bhutan	1971
Bolivia★	1945
Botswana	1966
Brazil★	1945
Brunei Darussalam	1984
Bulgaria	1955
Burkina Faso☆	1960
Burma	1948
Burundi	1962
Byelorussia	1945
Cameroon	1960
Canada★	1945
Cape Verde	1975
Central African Republic	1960
Chad	1960
Chile★	1945
China★‡	1945
Colombia★	1945
Comoros	1975
Congo	1960
Costa Rica★	1945
Cuba★	1945
Cyprus	1960
Czechoslovakia★	1945
Democratic Kampuchea†	1955
Denmark★	1945
Djibouti	1977
Dominica	1978
Dominican Republic★	1945
Ecuador★	1945
Egypt★	1945
El Salvador★	1945
Equatorial Guinea	1968
Ethiopia★	1945
Fiji	1970
Finland	1955
France★	1945
Gabon	1960
Gambia	1965
German Democratic Republic	1973
Germany, Federal Republic of	1973
Ghana	1957

Formerly Dahomey

☆ Formerly Upper Volta

By resolution 2758 (XXVI) of 25 Oct. 1971, the General ssembly decided "to restore to the People's Republic of hina all its rights and to recognize the representatives of its overnment as the only legitimate representatives of China to he United Nations, and to expel forthwith the representatives f Chiang Kai-shek from the place which they unlawfully ccupy at the United Nations and in all the organizations elated to it".

Formerly Cambodia.

Greece★	1945
Grenada	1974
Guatemala★	1945
Guinea	1958
Guinea-Bissau	1974
Guyana	1966
Haiti★	1945
Honduras★	1945
Hungary	1955
Iceland	1946
India★	1945
Indonesia‡	1950
Iran★	1945
Iraq★	1945
Ireland	1955
Israel	1949
Italy	1955
Ivory Coast	1960
Jamaica	1962
Japan	1956
Jordan	1955
Kenya	1963
Kuwait	1963
Lao People's Democratic Republic	1955
Lebanon★	1945
Lesotho	1966
Liberia★	1945
Libyan Arab Jamahiriya	1955
Luxembourg★	1945
Madagascar	1960
Malawi	1964
Malaysia★★	1957
Maldives	1965
Mali	1960
Malta	1964
Mauritania	1961
Mauritius	1968
Mexico★	1945
Mongolia	1961
Morocco	1956
Mozambique	1975
Nepal	1955
Netherlands★	1945

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‡ By its letter of 20 January 1965, Indonesia announced its decision to withdraw from the United Nations "at this stage and under the present circumstances". By telegram of 19 Sept. 1966, it announced its decision "to resume full co-operation with the United Nations and to resume participation in its activities". On 28 Sept. 1966, the General Assembly took note of this decision and the President invited the representatives of Indonesia to take seats in the Assembly.

★★ The Federation of Malaya joined the United Nations on 17 Sept. 1957. On 16 Sept. 1963, its name was changed to Malaysia, following the admission to the new federation of Singapore, Sabah (North Borneo) and Sarawak. Singapore became an independent State on 9 August 1965 and a United Nations member on 21 Sept. 1965.

New Zealand*	1945
Nicaragua*	1945
Niger	1960
Nigeria	1960
Norway*	1945
Oman	1971
Pakistan	1947
Panama*	1945
Papua New Guinea	1975
Paraguay*	1945
Peru*	1945
Philippines*	1945
Poland*	1945
Portugal	1955
Qatar	1971
Romania	1955
Rwanda	1962
St. Christopher and Nevis	1983
Saint Lucia	1979
Saint Vincent and the Granadines	1980
Samoa, Western	1976
Sao Tome and Principe	1975
Saudi Arabia*	1945
Senegal	1960
Seychelles	1976
Sierra Leone	1961
Singapore	1965
Solomon Islands	1978
Somalia	1960
South Africa*	1945
Spain	1955
Sri Lanka	1955
Sudan	1956
Surinam	1975
Swaziland	1968
Sweden	1946
Syrian Arab Republic*‡‡	1945
Tanzania††	1961
Thailand	1946
Togo	1960
Trinidad and Tobago	1962
Tunisia	1956
Turkey	1945
Uganda	1962
Ukrainian Soviet Socialist Republic*	1945
USSR	1945
United Arab Emirates	1971
United Kingdom	1945
USA*	1945
Uruguay†	1945
Vanuatu	1981
Venezuela*	1945
Viet Nam	1977
Yemen Arab Republic	1947
Yemen, PDR	1967
Yugoslavia*	1945
Zaire	1960
Zambia	1964
Zimbabwe	1980

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* Original Member.

‡‡ Egypt and Syria were original Members of the United Nations from 24 Oct. 1945. Following a plebiscite on 21 Feb. 1958, the United Arab Republic was established by a union of Egypt and Syria and continued as a single member. On 13 Oct. 1961, Syria resumed its status as an independent state and simultaneously its United Nations' membership. On 2 Sept. 1971, the United Arab Republic changed its name to Arab Republic of Egypt.

†† Tanganyika was a United Nations member from 14 Dec. 1961. Zanzibar was a member from 16 Dec. 1963. Following the ratification on 26 April 1964 of Articles of Union between Tanganyika and Zanzibar the United Republic of Tanganyika and Zanzibar continued as a single member changing its name to United Republic of Tanzania on 1 November, 1964.

‡ By an amendment of the UN Charter on Aug. 31, 1964.

Ambassador Attenborough

The United Nations Children's Fund has taken on *Sir Richard Attenborough*, the British film director, as a UNICEF goodwill ambassador. Also serving in that role are the British actor *Peter Ustinov*, the Norwegian actress *Liv Ullmann*, the Japanese actress *Tetsuko Kuroyanagi* and the American singer *Harry Belafonte*.

Attenborough, 64, director of the Oscar-winning film 'Gandhi', said that some of the proceeds from the premiere this week of his movie "Cry Freedom" would be donated to UNICEF. The film portrays the friendship between *Steven Biko*, the South African black activist and *Donald Woods*, a white newspaper editor.

It is interesting to notice that in 1987 UNICEF revoked the goodwill ambassadorship given to tennis prodigy Boris Becker of West Germany on account of his association with the aparthied reigme of South Africa.

WORLD ORGANIZATIONS

Among the international organizations / associations other than the United Nations are the six decade-old Commonwealth and the world's newest regional organization, SAARC—South Asian Association for Regional Co-operation – of India, Maldives, Pakistan, Bangladesh, Sri Lanka, Bhutan and Nepal.

ADB—The Asian Development Bank was initially sponsored by the ECAFE and started functioning in 1966. In 1975, ADB had 27 regional members and 14 non-regional members.

In June 1974, ADB launched the Asian Development Fund (ADF) with a view to providing concessional credits to needy members.

Amnesty International: A world-wide human rights organization with headquarters in London. The Organization began on May 28, 1961 with a newspaper appeal by the British Lawyer Peter Berenson. Now it has more than 5,00,000 members in more than 150 countries. It won the Nobel Prize for Peace in 1977.

Secretary General: Ian Martin (Britain)

The Arab League is the outcome of a national awakening of the Arabs, following the fall of the Ottoman Empire in the First World War. It was formally instituted on March 22, 1945.

The Arab League consists of a Council, a Secretary General and a few permanent committees.

The League considers itself a regional organisation within the framework of the UN at which its Secretary-General is an observer.

Member countries (21): Algeria, Bahrain, Djibouti, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestine L.O., Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, UAE, PDR of Yemen, and Yemen Arab Republic.

Secretariat: Tunis

Secretary General: Chedli Klibi (Tunisia).

ASEAN—The Association of South East Asian Nations is a regional organization formed by the governments of Indonesia, Malaysia, the Philippines, Singapore and Thailand through the Bangkok Declaration which was signed by the Foreign Ministers of ASEAN countries on 8 Aug. 1967. Brunei joined in 1984. Its aim is to accelerate economic progress and maintain the economic stability of South East Asia.

Each ASEAN capital has an ASEAN National Secretariat. The central secretariat for ASEAN is located in Jakarta, Indonesia, and is headed by the Secretary General, a post that revolves among the member states in alphabetical order every 2 years. Bureau directors and other officers of the ASEAN Secretariat remain in office for 3 years.

Secretary-General: Phan Wannamethee (Thailand).

Colombo Plan. Founded in 1950 to promote the development of newly independent Asian member countries, the Colombo Plan has grown from its modest beginning as a group of seven Commonwealth nations into an international organization of 26 countries.

Member Countries: Afghanistan, Australia, Bangladesh, Bhutan, Burma, Kampuchea, Canada, Fiji, India, Indonesia, Iran, Japan, Republic of Korea, Lao People's Democratic Republic, Malaysia, Maldives, Nepal, New Zealand, Pakistan, Papua New Guinea, Philippines, Singapore, Sri Lanka, Thailand, UK and USA.

Headquarters: Colombo Plan Bureau, 12 Melbourne Avenue, PO Box 596, Colombo 4, Sri Lanka.

Commonwealth. The 48-nation Commonwealth represents a third of the nations of the world.

The idea of a Commonwealth of Nations comprising Great Britain, the Dominions and other Territories in the British Empire was first accepted at the Imperial Conference of 1926. In 1931, the Statute of Westminster recognised the status of the Dominions and defined the relations of the British Crown to the Dominions. The other territories were entitled to become members of the Commonwealth on attaining full self-government. In 1947, the office of the Secretary of State for Dominions was abolished and the Secretary of Commonwealth Relations assumed charge.

The Commonwealth has no written constitution which regulates its functions. Its members are autonomous countries associated with Britain, equal in status, in no way subordinate to one another in any aspect of their domestic or foreign affairs, though united by a common allegiance to the Crown, and freely associated as members of the British Commonwealth of Nations.

Some of the members like Canada, Australia and New Zealand recognise the Queen as the titular head of their States and have Governors-General appointed by the Queen on the recommendation of the State Cabinets. Some like India and Sri Lanka, who have elected Presidents of their own as Heads of State, recognise the Queen as the Head of the Commonwealth only.

Members of the Commonwealth are represented in other Commonwealth countries by diplomatic officers called High Commissioners in the place of Ambassadors representing non-Commonwealth countries.

Britain's entry into the European Economic Community or the European Common Market in 1972 has not altered the relations of Britain with the Commonwealth countries, while it has increased the opportunities of Commonwealth countries to negotiate advantageous commercial agreements with the EEC. India, Sri Lanka and Bangladesh have already established co-operative commercial agreements with the Community.

The present member countries of the Commonwealth are as follows:

Australia, Antigua and Barbuda, Bahamas, Bangladesh, Barbados, Belize, Botswana, Brunei, Canada, Cyprus, Dominica, The Gambia, Ghana, Grenada, Guyana, India, Jamaica, Kenya, Kiribati, Lesotho, Malawi, Malaysia, Maldives, Malta, Mauritius, Nauru, New Zealand, Nigeria, Papua New Guinea, St. Christopher and Nevis, Saint Lucia, St. Vincent, Seychelles, Sierra Leone, Singapore, Solomon Islands, Sri Lanka, Swaziland, Tanzania, Tonga, Trinidad and Tobago, Tuvalu, Uganda, United Kingdom, Vanuatu, Western Samoa, Zambia and Zimbabwe.

CHOGM—Commonwealth Heads of Governments Meet has become an important international event. India hosted the summit in 1983 when Prime Minister Indira Gandhi presided over the deliberations.

Canada hosted the 27th summit in October 1987.

The next summit will be held in Kuala Lumpur.

Headquarters: Marlborough House, Pall Mall, London, SW 1Y 5HX.

Secretary-General: Shridath S. Ramphal (Guyana).

Council of Europe: In 1948 the 'Congress of Europe', bringing together at The Hague nearly 1,000 influential Europeans from 26 countries, called for the creation of united Europe, including a European Assembly. This proposal, examined first by the Ministerial Council of the Brussels Treaty Organization, then by a conference of ambassadors, was the origin of the Council of Europe, which is, with its 21 member States, the widest organization bringing together all European democracies.

The Statute of the Council was signed at London on 5 May 1949 and came into force 2 months later. The founder members were Belgium, Denmark, France, Ireland, Italy, Luxembourg, the Netherlands, Norway, Sweden and the UK. Turkey and Greece joined in 1949, Iceland in 1950, the Federal Republic of Germany in 1951 (having been an associate since 1950), Austria in 1956, Cyprus in 1961, Switzerland in 1963, Malta in 1965, Portugal in 1976, Spain in 1977 and Liechtenstein in 1978.

Headquarters: Palais de l'Europe, 67006, Strasbourg, Cedex, France.

Secretary-General: Marcelino Oreja Aguirre (Spain).

COMECON—Council for Mutual Economic Assistance. Founder members are USSR, Bulgaria, Czechoslovakia, Hungary, Poland and Romania. Later admissions were Albania (1949, ceased participation 1961), German Democratic Republic (1950), Mongolia (1962), Cuba (1972), Vietnam (1978). In 1964 Yugoslavia concluded an agreement with CMEA whereby Yugoslavia would participate in the work of some CMEA bodies (at present 21). Afghanistan, Angola, Ethiopia, Laos, Mexico, Mozambique, Nicaragua and the People's Democratic Republic of Yemen attend CMEA sessions as observers.

Headquarters: Prospekt Kalinina, 56, Moscow, G-205.

Secretary: V. V. Sychev (appointed 1983).

ECSC—The European Coal and Steel Community was created in pursuance of a treaty signed by six countries of Europe, in Paris in 1951. The countries were: France, Belgium, th Netherlands, Luxembourg, Federal Republic

Germany and Italy. The treaty affirmed a closer political union of the six countries and created a common market for coal, iron and steel.

The EEC—The European Economic Community, commonly known as the ECM—European Common Market—was brought into existence by the Treaty of Rome of March 25, 1957, signed by the six countries of ECSC—France, Belgium, the Netherlands, Luxembourg, Federal Republic of Germany and Italy. Later Britain, Ireland, Denmark and Norway signed the treaty of accession, but Norway withdrew. With Greece, Spain and Portugal joining lately the EEC now has a membership of 12 countries.

EEC has become the world's largest and most prosperous trading area, with a population of 320 millions—larger than that of any superpower.

The Treaty of Rome guarantees certain rights to the citizens of all member states (e.g. the outlawing of economic discrimination by nationality, and equal pay for equal work as between men and women) and sets out certain other areas where secondary legislation is to fill in the details.

EFTA—European Free Trade Association was formed in 1960, as the result of a convention signed by seven countries of Europe at Stockholm. The countries were UK, Austria, Denmark, Norway, Sweden, Switzerland and Portugal. This Association was formed on the pattern of the EEC and has the same objectives. The seven countries who formed the EFTA were generally called the Outer Seven, in coutradistinction to the six countries of the EEC, who were called the Inner Six.

Headquarters: Brussels.

The European Free Trade Area (see EEC) has provided common ground for economic co-operation among fifteen European countries—Belgium, France, Germany (West), Italy, Luxembourg, the Netherlands (orginal six of EEC), Denmark, Ireland, UK (who joined the ECC in 1972). Austria, Iceland, Norway, Portugal, Sweden and Switzerland (the remaining members of the EFTA).

EURATOM— The European Atomic Energy Community was formed in pursuance of a treaty signed in Rome in 1957 by the six countries who formed the ECSC and the EEC. The work of the EURATOM is controlled by the same organs as those of the EEC. But the executive powers are vested in a commission of 5 members nominated by the Council of Ministers and advised by a Scientific and Technical Committee of 20 members and an Economic and Social Committee of 101 members. All major decisions are, however, taken by the Council of Ministers which is formed of one minister from each member state. The object of the EURATOM is the development of nuclear energy for peaceful puropses.

Headquarters: Brussels, Belgium.

South Commission Comes Into Being

The South Commission, the latest international organization opened its headquarters in Geneva, Switzerland, on October 2nd, 1987.

Julius Nyerere, former President of Tanzania took over as the Chairman of the 28-member Commission set up by the Non-Aligned Movement. The former Governor of the Reserve Bank of India, Dr. Manmohan Singh, is the Secretary General.

Other members include: Cuban Vice President Carlos Rafael Rodriguez, former Jamaican Prime Minister Michael Manley and Ivory Coast businessman Aboubaker Diaby Outta.

"The third-world is disillusioned about the policies imposed by the International Financial Institutions and creditor governments" said Nyerere at the opening ceremony.

Meanwhile, 'The Group of 77', *the Third World economic grouping elected Guatemala as its Chairman for 1987. The Group of 77 was founded under the auspices of the UN in 1964 to defend the economic and trade interests of the developing world.*

The European Parliament is composed of 142 parliamentary representatives from the six countries of Europe who are signatories to the Treaty of Paris (1951) which formed the ECSC and the Treaty of Rome (1957) which formed the EEC and the EURATOM. The delegates to the parliament are elected by the respective legislatures of the member countries in fixed proportions.

Headquarters: Luxembourg.

ESRO— The European Space Research Organization was formally established in 1964 to promote collaboration among European States, in space research and technology exclusively for peaceful purposes. The members are Belgium, Denmark, France, West Germany, Italy, the Netherlands, Spain, Sweden, Switzerland and UK. Austria, Ireland and Norway praticipate as observers.

Headquarters: Paris, France.

The French Community is an organisation like the British Commonwealth. It offers to the French overseas territories, which manifest their will to adhere to it, new institutions based on the common idea of liberty, equality and fareternity and conceived with a view to their democratic evolution. This principle was accepted and promulgated by the Constitution of the (Fifth) French Republic which came into force in 1953.

Independent members of the Community are: 1. French Republic, 2. Central African Republic, 3. Republic of Congo, 4. Gabon, 5. Senegal, 6. Chad, 7. Madagascar, 8. Djibouti.

IATA— The International Air Transport Association was founded in 1945 to promote safe, regular and economical air transport and to provide a forum for collaboration. At present there are 40 international airlines (active members) and 19 domestic airlines (associate members).

The Annual General Meeting is the ultimate authority in the Association. The Executive Committee consists of 18 elected members.

Headquarters: Montreal, Canada and Geneva, Switzerland.

INTERPOL: 138-Nation Police Commission, established in 1923, to co-ordinate police activities of participating nations with headquarters in Paris. After a terrorist bomb blast in May, 1986, it was decided to shift the headquarters to Lyons.

NATO— The North Atlantic Treaty Organization. In 1949 the foreign ministers of Belgium, France, Luxembourg, the Netherlands, UK, Canada, Denmark, Iceland, Italy, Norway, Portugal and USA met in Washington and signed the North Atlantic Treaty. Greece and Turkey joined the Treaty in 1951, the Federal Republic of Germany in 1955 and Spain in 1982. Thus NATO is an organization made up of 13 European states, two American states (Canada and USA) and an Asiatic state (Turkey).

The Council is the supreme body of the NATO. It consists of the ministers of member states. The Secretary General is appointed by and responsible to the Council. The Military Committee is the supreme military body of NATO. It consists of the Chiefs of Staff of member states. In 1966 France withdrew from the Military Committee while remaining a member of the Council.

Headquarters: Brussels, Belgium.

Secretary General: Lord Carrington (UK)

OAS— The Organisation of American States. The Charter of the OAS was adopted in April 1948, at the ninth International Conference of American Sttates at Bogota, Colombia.

Twenty-two American countries are members of the organisation, with equal rights, each country possessing one vote. The members are: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, Trinidad and Tobago, Venezuela and USA. In Jan. 1962 Cuba was excluded from the OAS at a special meeting held at Punta del Este, Uruguay.

Headquarters: Washington DC., USA.

Secretary General: Joao Clemente Baena Soares.

OAU—The organization of African Unity came into being in May 1963, when the heads of 30 African States met at Addis Ababa and signed a charter establishing a common organisation for all African states.

Its chief objects are unity and solidarity among African States, elimination of colonialism and defence of the indpendence of member states. The supreme body in the OAU is the Conference of Heads of States or Governments. The official languages of the organization are French and English in addition to all the native African Languages.

The organization has 50 member-states (1984).

Headquarters: African Unity House, Addis Ababa, Ethiopia, *Chairman:* Dr. Kennath

Kauhda (Zambia). Secretary-General: Dr. Peter U. Onu (Nigeria).

OECD—The Organization for Economic Co-operation and Development was formed in 1961 to replace the Organisation for European Economic Co-operation (OEEC) which was started immediately after the Second World War for the reconstruction of war-ravaged European states. The OEEC was formed in response to an offer of aid from the US Secretary of State Marshall. This aid, since called the Marshall Aid, was to be used to rehabilitate the economies of European states ruined by the war. A conference of European states was held in Paris in 1948 to accept the proposal.

The OEEC changed its name in 1961 as OECD. The change indicates the altered status of the organisation. It is no longer a purely European organisation. USA and Canada have joined it as full members. This has made it an international organization. The aims of the reconstituted organisation are to achieve the highest possible economic development in member countries and to raise the standard of living. The council consisting of the ministers of the member countries is the supreme body of the organization.

Headquarters: Paris, France. Members: 24.

OPEC—The Organisation of Petroleum Exporting Countries was the culmination of a long drawn out tug of war between international oil companies and the petroleum exporting countries. Most of these companies were gigantic cartels controlling production in more than one state. It was in their option to increase or reduce petroleum production in various countries and to manipulate prices. Very often they played one producing country against another by adopting various devices that affected the economy of the producing states without reducing the companies' profits.

The immediate provocation for the formaion of the OPEC was provided by the announcement of oil companies that they were reducing the prices of Middle East crude. This meant that the countries concerned would be losing proportionately. A conference called together at Baghdad in 1962 decided to form the OPEC. This conference was attended by the representatives of Iraq, Kuwait, Saudi Arabia (Arab Muslim states), Iran, a non-Arab but Muslim state, and Venezuela, a non-Arab, non-Muslim state in far away South America. These countries at that time controlled 80 per cent of the world oil trade.

Membership (1981). Algeria, Ecuador, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates and Venezuela. Membership is open to any other country having substantial net exports of crude petroleum, which has fundamentally similar interests to those of member countries.

OPEC Fund: The Fund was established in 1976 to provide financial aid to developing countries, other than OPEC members, on advantageous terms.

Headquarters: Obere Donaustrasse 93, A-1020 Vienna, Austria.

Chairman: Rilwanu Lukman, (Nigeria)

Acting Secretary General: Dr. Fadhil JIAl-Chalabi (Iraq).

Red Cross: International society for relief of suffering in time of war or disaster. International Committee of Red Cross was founded (1863) on advocacy of J.H. Dunant (1828-1910). Delegates from 14 countries adopted Geneva Convention (1864), providing for neutrality of personnel treating wounded etc. Over 100 national Red Cross societies now exist. Awarded Nobel Peace Prize (1917, 1944, 1963).

Headquarters: Geneva

SAARC: South Asian Association for Regional Co-operation comprises of India, Maldives, Pakistan, Bangladesh, Sri Lanka, Bhutan and Nepal. It was launched following the Dhakka Summit in early December 1985. The second Summit was held in Bangalore in 1986 and the third in Kathmandu in 1987. Next Summit will be in Colombo.

Headquarters: Kathmandu, Nepal.

Chairman: Nepal.

Secretary General: Abul Ahsan (Bangladesh).

The Warsaw Pact. On 14 May 1955 the USSR, Albania, Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, Poland and Romania signed in Warsaw, a 20-year treaty of friendship and collaboration, after the USSR had (on 7 May) annulled the 20-year treaties of alliance with the UK (1942) and

France (1944). This was renewed for another term.

It is estimated (1981) that the armed forces of the Warsaw Pact countries total 4.82 m, including 3.71 m Russians, compared with 4.99 m NATO forces.

From 1962 Albania was no longer invited to the Warsaw Pact meetings although not formally expelled.

Two Soviet divisions are stationed in Poland, 20 divisions in German Democratic Republic, 4 divisions in Hungary and 5 in Czechoslovakia.

Headquarters: Moscow, USSR.

WCC—The World Council of Churches was formally constituted on 23 Aug. 1948, at Amsterdam, by an assembly representing 147 Churches from 44 countries. By 1984 the member Churches numbered over 300, from more than 100 countries.

The World Council was founded by the coming together of several diverse Christian movements. On 13 May 1938 at Utrecht a provisional committee was appointed to prepare for the formation of a World Council of Churches. It was under the chairmanship of William Temple, then Archbishop of York.

Presidium: Dr. Marga Buhrig (Switzerland), Most Rev. W. P. K. Makhulu (Botswana), Dame R. Nita Barrow (Barbados), Bishop Johannes Hempel (German Democratic Republic), Dr. Lois Wilson (Canada), *Metropolitan Paulos Mar Gregorios (India),* Patriarch Ignatios IV (Syria).

Secretary General: Dr. Emilio Castro (Uruguay).

Office: PO Box 66, 150 route de Ferney, 1211 Geneva 20, Switzerland.

Nuclear Accident Record

1 October 7, 1957: *Sellafield, England. Fire in reactor spread radiation throughout Cumbria. At least 39 known to have died of cancer.*

2. 1957: *Kasli, the Urals, Soviet Union. Explosion in tanks containing waste from nuclear weapons. Casualties not disclosed.*

3. January 3, 1961: *Idaho Falls, Idaho, United States. Reactor went out of control. Three killed.*

4. October 5, 1966: *Detroit, United States. Reactor core meltdown after malfunction. No known injuries.*

5. January 21, 1969: *Lucens Vad, Switzerland. Reactor malfunction and heavy leak into a carvern. No known injuries.*

6. October 17, 1969: *Saint-Laurent, France. Partial meltdown of reactor. No known injuries.*

7. 1974: *Shevchenko, Soviet Union. Reactor explosion. No details.*

8. March 22, 1975: *Decatur, Alabama, United States. Fire burned reactor controls. No injuries.*

9. March 28, 1979: *Three Mile Island, Pennsylvania, United States. Reactor fuel meltdown. Reactor still being decontaminated.*

10. August 7, 1979: *Erwin, Tennessee, United States. Reactor malfunction and uranium leak. About 1.000 contaminated.*

11. April 25, 1981: *Tsuruga, Japan, Reactor malfunction. 45 contaminated.*

12. September 23, 1983: *Constituyentes, Argentina. Reactor accident. 1 killed.*

13. January 6, 1986: *Gore, Oklahoma, United States. Nuclear cylinder burst at plant. 1 killed, 100 injured.*

14. April 26, 1986: *Chernobyl, Soviet Union. 31 killed.*

SPECIAL FEATURE

SRI LANKA: ETHNIC CONFLICT AND THE PROSPECTS OF PEACE

Pronounced hatred and intense antagonism that have come to characterize ethnic relations between Tamils and Sinhalese in Srilanka have no precedence in the Island's history. These relations for centuries were marked by harmonious co-existence notwithstanding the obvious cultural diversity and areas of social incompatibility between the two communities. Exigenceis of British imperial rule did vitiate this harmony to some extent but there was still no antagonism or violence between them.

The responsibility for ethnic alienation between Tamils and Sinhalese lies, in large part, with the process of political and social development in independent Srilanka. Its early signs were visible in the land colonization and rehabilitation schemes of 1948 effected in the eastern province in favour of Sinhalese. An explicit political dimension was added to these signs when S.W.R.D. Bandaranaike came to power on the slogan of "Sinhala only"

Bandaranaike's call was more of a political tactics to outwit his Sinhala rivals. He even lost his life at the hands of a fanatic monk while trying to work out a balanced and permanent solution of the ethnic question in co-operation with the Tamil leader Chelvanayagam. However, by adopting communal tactics to win political competition, he created a vicious source of hatred and political violence which was soon to engulf the Srilankan society. The first Tamil-Sinhala violence broke out in 1956. Since then neither the Sinhala chauvinism has looked back, nor the Tamils have had any respite from discriminatory policies and ethnic violence (recurred in 1958, 1977, 1981 and continuously since 1983) inflicted by the majority community.

The Tamils tried, for more than two decades, to ensure a fair political and economic deal from the Sinhalese but the latter's broken promises and persistent victimization drove them to the demand of a separate State. Admitting this, the election manifesto of Jayawardene's United National Party (UNP) said in 1977:

> *The United National Party accepts the position that there are numerous problems confronting the Tamil speaking people. The lack of a solution to their problems made Tamil speaking people support even a movement for the creation of a separate State. In the interest of national integration and unity so necessary for the economic development of the whole country, the Party feels such problems should be solved without loss of time.*

Behind this manifesto were the hard facts. The mean income—per income receiver of Srilankan Tamil dropped from Rs.327 in 1963 to Rs. 309 in 1973. Tamil employment in administrative services declined from 30% in 1956 to 5% in 1970 and almost nil in 1978. Even in clerical services, of the total recruitment between 1977 and 1981 only 4.9% posts went to Tamils. Their representation in armed forces which stood at 4% in 1956 almost disappeared by the end of the 1970s. What was worse, growing discrimination in language and educational policies left no hope for Tamil boys and girls to chart out a decent career. Their frustrations drove them to swell the ranks of separatist forces which, as late as in 1972, had not secured more than 200 votes.

True to the character of the Sinhalese politics, the realization that had drawned on the UNP at the time of 1977 elections, was soon forgotten after coming to power. Not only the anti-Tamil distortions in Srilankan polity and socio-economic context were not corrected, but the Jayawardene regime even launched a systematic strategy of coercing the Tamils into permanent submission.

The events of July 1983, thus could not have been avoided. Even the outbreak of massive violence did not induce sobering thoughts in the administration. The response of the regime was quite the opposite, to further unleash the forces of violence and coercion against Tamils under the protection of the State.

There could be many explantations of this, but two points deserve particular attention. One objective was to camouflage the anti-domestic character of Srilanka's fast growing sectarian "bonapartist state" which needed legitimacy for its coercive character in the shadow of ethnic violence. But more importantly, the Jayawardene regime was in the grip of narrowly minded anti-Tamil chauvinists like Prime Minister Premdasa and Cabinet Ministers Cyril Mathew and Athulathmudali.

Their eyes were set on the intra-party struggle for power after Jayawardene disappeared from the scene. They drew their strength from the sections of powerful vested interests in the Sinhalese community such as the Buddhist clergy which aimed at perpetual dominance of Sinhala-Buddhist forces on Srilankan polity; the armed forces, which, though indisciplined and plitically recruited, saw prospects of career promotion and personal fortunes in an intensifying social conflict and the new Sinhala entrepreneur class which wanted to prosper at the cost of their Tamil competitors.

There is sufficient evidence to show tha during the July 1983 violence and even subsequently Tamil shops and business and industrial establishments were picked up systematically for attacks and loot. All these veste interests are the strong proponents of militar approach to the Tamil question which dominated the Jayawardene regime's policy unti recently.

The military approach was occasionall tempered by a search for negotiated politic solution. However, neither the Tamil militant nor the Sinhala hawks had any real politic will to accommodate each other. As late as i December 1986, President Jayawardene told U.S. Congressional delegation in a closed do meeting that acceptance of basic Tamil demands would split the ruling party and therefore, was not possible. But the talk of a "negotiated settlement" was found politically expedient.

On the one hand it pacified external pressures and kept the Western aid flowing. On the other hand, it gave time to armed forces to equip themselves better for the next round of assault on Tamils. This being devoid of sincerity, it only served the purpose of the military approach.

The assumption of the Srilankan State that it could secure a military solution of the Tamil problem was flawed on many counts. Some of the important factors may be noted in this respect. To begin with, it militated against the time honoured principle of ethnic co-existence and harmony which had sustained Srilanka's plural, multi-racial, multi-lingual and multi-religious social fabric. Attack on this principle alienated Tamils beyond a point of return and logically gave strength to their demand for a separate State.

Military approach of the Jayawardene regime also provoked counter militancy from the Tamils. This soon had impact upon the nature of Tamil struggle for their legitimate demands. The leadership of the struggle, which traditionally remained with middle class based moderate Tamil United Liberation Front (TULF) soon shifted to militant Tamil organisations composed of young school and college drop outs who had hardly had any experience of co-existing peacefully with the Sinhalese.

There came to the fore nearly half a dozen of such organizations of which, the important ones were the LTTE, the Elam Revolutionary Organizations (EROS); the Peoples' Liberation Organization of Tamil Elam (PLOTE), and Tamil Elam Liberation Organization (TELO). As the intensity of violence against the Tamils increased, the value of fighting skills and capacities also increased. This led to an internecine conflict among the various Elam organizations for ultimate leadership of the Tamil struggle. These organizations also differed from each other in their ideologies, social bases, organizational structures, sources of support and guerrilla tactics.

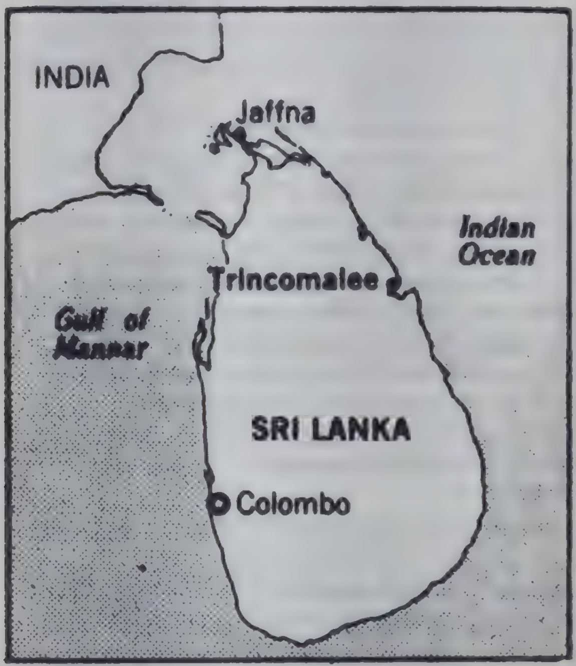
From this internecine Tamil conflict, that continued along with the Tamil-Sinhala violence, the LTTE emerged as the dominant force, much motivated and determined to fight to the finish for the creation of Tamil Elam. This made a negotiated solution all the more difficult to emerge.

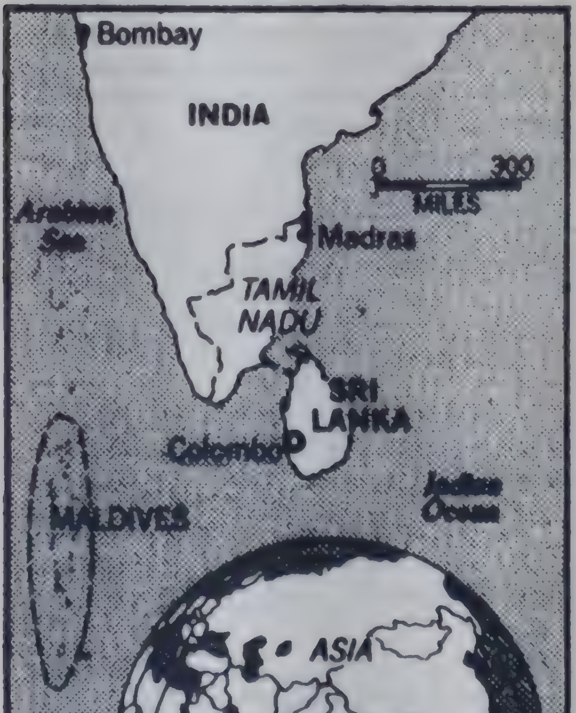
A determined and motivated LTTE made the success of military approach very difficult too. It escalated the cost of war which the Sri Lankan economy could ill afford, at the estimated level of $1m a day. The war seriously affected Sri Lanka's tourist industry, an important source of foreign exchange earning. The growing defence budget required uninterrupted flow of foreign aid but Sri Lanka's aid donors were finding it hard to justify aid to a country under civil war. That is why the Finance Minister became an important voice of moderation.

A third flow of Sri Lanka's military approach was to keep India out of the ethnic crisis as well as the Tamil question. To ensure this, the Jayawardene regime mobilised support from various sources in the West, Pakistan and China. In return the external powers tried to secure a strategic foothold in Sri Lanka. This became evident in the growing involvement of British and American mercinaries, and Israeli intelligence agency (Mossad) on the side of the Sri Lankan forces.

This also led the U.S. to secure expansion of its Voice of America Station in Sri Lanka and to enter into the Trincomalee oil tank farm renovation project through a proxy Singapore firm so as to further long-term American strategic objectives in the region. Prospects of revival of a British-Sri Lankan Defence Agreement of 1948, which was lying as a dead letter since 1956-58, also appeared on the horizon. And Pakistan looked forward to entering into a Treaty of Peace and Friendship with Sri Lanka in return for its help (training and arms supply) in the ethnic war. To China, Sri Lanka appeared as a strategically located market for arms sales.

It was therefore, clear that these external forces were mainly interested in taking advantage of Sri Lanka's ethnic conflict and the resulting tensions between Sri Lanka and India. They were not committing themselves to the Jayawardene regime beyond a point, particularly, if India decided to force issues. As a result, when India air-dropped relief supplies to beleaguered Jaffna Tamils in May, 1987, international reactions were comparatively mild.





President Jayawardene himself admitted that his external friends—he named the U.S. and the U.K.—let him down. This was one of the important reasons which made him sign the Accord with India in July and accept those very terms and even more, which he was resisting since early 1984, suggested by India (Annexure 'C') for the solution of the Tamil problem.

We have noted above that an attempt on Sri Lanka's part to ignore the India factor was a serious flow. It was neither possible nor desirable to keep India out of the ethnic context, since India was the most directly and seriously affected neighbour. Owing to cultural and geographical contiguity between Sri Lanka's Tamils and India's Tamil Nadu, a total of 1,50,000 Sri Lankan refugees took shelter in India causing economic burden and sociopolitical tensions in Tamil Nadu. This in turn generated pressures on India's Central Government for effective action to save Sri Lankan Tamils.

India also could not remain unconcerned regarding the implications of growing external strategic presence in Sri Lanka, for its own and regional security. India therefore, tried to mediate between the Tamils and the Sri Lankan government for a negotiated political solution as it could neither witness continued violence against innocent Tamils, nor endorse the militant Tamils' demand for a separte Tamil State. Mediation did not succeed because none of the conflicting parties were really prepared for that.

Sri Lanka's military approach collapsed under the weight of its inherent weaknesses and unrealistic assumptions identified above. Besides, Jayawardene was also worried about the threat, posed to his own political and even physical survival from the hawks in his own party and opponents from outside, if the ethnic war dragged on. This forced him to enter into an Accord with India in July 1987 under which his government conceded all the major demands of the Tamils, including the formation of a separate administrative unit of northern and eastern provinces which together constitute a Tamil majority area.

For India, the Accord was not an ideal solution either. Such an accord should have been essentially signed between the two contending parties, the LTTE and the Sri ankan government. In the absence of that, ndia had to undertake the unpleasant task of naintaining ethnic peace in Sri Lanka and also naking the LTTE and other Tamil groups fall n line with the accord. But then there was no ther viable way out of the festering Sri ankan crisis which posed a growing threat to ndia's domestic peace and regional security nterests.

The Accord offered the best alternative to an ncreasingly worsening situation. As a bonus, ndia got the Jayawardene regime to ccommodate its regional security concerns, s in the letters exchanged, Sri Lanka agreed to esist from allowing external forces to build p their strategic presence in the Island. There vas obviously American and British endorse- nent of Sri Lanka's foreign policy concessions owards India.

This could be seen as a calculated gesture n the part of the U.S. towards India so as to ecure the latter's acquiescence, if not support, or the American position on larger strategic ssues affecting the Indian Ocean, Pakistan and outh-West Asia, and nuclear non-prolifera- on. In the immediate context, the Accord has nhanced India's regional status. Pakistani ritation and China's low key response to the ccord could be seen in this context. The ccord also strengthens the position that ilateral and contentious issues in South Asia hould be, and could be, sorted out outside ne SAARC framework.

Accordingly, both India and the Jayawar- ene regime have deep stakes in the imple- nentation of the Accord. The obligations that ndia has undertaken under the Accord are ndeed heavy and troublesome. While Presi- ent Jayawardene has to deal only with the inhala opponents of the accord — the hawks n his own ruling party, Mrs. Bandaranaike and er SLFP, sections of clergy and armed forces nd the J.V.P. Sinhala extremists — India has ot only to lend support to the Jayawardene egime but also to get the Tamils to implement .

The operations of the IPKF against the LTTE n October were the first serious manifestation f the underlying challenges in the imple- nentation of the Accord. There is no doubt nat Sri Lankan government's insistence on nifting arrested LTTE commanders from Jaff- a area to Colombo which led to mass suicide by them on 5th October 1987 precipitated the crisis and almost trapped the IPKF into a situation of fighting with the LTTE.

But the LTTE also had from the beginning, had its reservations about the Accord. And their fickle mindedness on the question of the composition of North-East Council gave handle to the hawks within the Jayawardene government to put pressure on India's role in the Accord. The problem of the LTTE is that it has less than a compact leadership and has known nothing else than carrying on armed struggle against an identified target. They switched on their adversary image from Jayawardene regime to India without even a second thought.

May be a variety of subversive influences that had made deep inroads into the LTTE ranks during its ermergence to dominance are responsible for this. May be that the LTTE was afraid of playing the game of electoral politics expected of it under the Accord and therefore, quickly reverted to the game of gun battle which it had perfected. But then other parties cannot continue to suffer the LTTE indefinitely.

In the situation created by the extensive violations of ceasefire by the LTTE, India had no other option but to direct the IPKF to assert. The only other alternative was to withdraw the IPKF and thus bury the Accord. Indian credibility would then have suffered seriously, not only in Sri Lanka but also in South Asia. The advantages accruing from the Accord would have evaporated and the Rajiv government would have come under heavy pressure within India. Above all, the Sri Lankan hawks would have taken over the Jayawardene regime not only threatening the President and the pro-Accord forces but also innocent Tamils.

The IPKF operations against the LTTE would no doubt cause, strong ripples in Tamil Nadu politics for some time to come. But that would also send correct signals to all the anti-accord forces in Sri Lanka to the effect that India means business. The success of these operations also carry firm message for terrorism in India and the neighbouring countries. The situation emerging after the end of the operations would certainly strengthen moderate forces in Sri Lanka, both among the Tamils and the Sinhalese so as to facilitate slow but gradual return to ethnic harmony in the Island.

The taming of the LTTE challenge by no means marks an end to the difficulties in the road to implement the Accord. The actual working of the North-East Council and the holding of referendum to give it a stable basis will require all the administrative skill and political sagacity that the Rajiv and the Jayawardene governments can employ.

The Jayawardene regime is due to complete its term in an years time. Much would also depend upon the arrangement that succeeds the present regime. There are therefore, a number of important imponderables that would shape the fate of the Accord and ethnic peace in Sri Lanka. At this stage, one can only hope that the forces committed to the Accord would succeed in dealing with the forthcoming challenges. Because in that only lies the interest not only of the Tamils, but also of India and Sri Lanka as an integrated nation.□

The surrender of arms in Batticaloa

Part Three

INDIA AND THE STATES

Drought: Economy Can Absorb The Shock More Easily Now

INDIA UPDATE

We have built up a buffer stock of 23 million tonnes of foodgrains and the area under irrigation stands at 62 million hectares against 31 million hectares in 1965.

WHAT Indian economy needs is a definite direction and thrust. Efforts are needed to convert the severe drought situation in many parts of the country into an opportunity.

A multi—pronged thrust to the economy has become necessary since the growth rate of gross national product (GNP) in 1986-87 is expected to be lower than the level of 5.1% in 1985-86

Despite several corrective measures taken by the Union and State Governments the foodgrains production is expected to be 135 to -140 million tonnes in 1987-88 showing a fall of 10 to 1 million tonnes over the previous year. The rains in the third quarter of the year i many parts of the countr have improved the prospects of the rabi crop.

The drought in 1987 its considered to be one of the worst the country has faced and certainly worse than the one of 1965, when large food imports had to be resorted to.

But there is a qualitative difference between the situation in 1965 and 1987, in that, the country now has a buffer stock of 23 million tonnes of foodgrains, the area under irrigation stands at 62 million hectares against 31 million hectares in 1965, and Indian agriculture has developed the resilience to absorb the shock of four consecutive years of poor monsoon. This resilience, is sure to prevent too steep a fall in foodgrain production.

As far as cash crops are concerned, while the *cotton crop* is expected to be better, the production of oilseeds is expected to erode further, and the sugarcane production is expected to be maintained.

The cotton output of 1986-87 (September 1986 to August 1987) is likely to be marginally higher, at 100 lakh bales, compared to previous season's level of 95 lakh bales.

The production of *sugarcane* is expected to be around 175 million tonnes in the season (October 1986-September 1987), thanks to the favourable turn the monsoon has taken in Maharashtra. It may, however, suffer in Western U.P. A marginal fall in sugarcane production is unlikely to affect the overall sugar production, which is expected to cross the previous record level of 84.36 lakh tonnes. Moreover, the present sugar policy will enable the industry to divert more sugarcane from jaggery and khandsari to sugar production.

The prospects for *oilseeds* are, however, not too bright. The production is expected to fall sharply next season, from 125 lakh tonnes of the previous season. Considering the shortfall in groundnut, the major oilseed crop, the production is likely to drop below the 1985-86 level of 112 lakh tonnes, although it may not touch the low of 100 lakh tonnes in 1982-83. This is mainly because of increased production of mustard-seeds and rape-seeds, and larger acreage under rabi oilseed crops.

The importance of achieving a breakthrough in oilseeds production is reflected in the comprehensive package of measures being implemented under the Oilseeds Technology Mission. Oilseeds prices have risen over the years, but this price buoyancy has often not accrued to the farmers. Efforts are,

Indian Per Capita Income Up

The new figures of economic and social indicators as updated by the World Bank *have raised the per capita Indian gross national product from $ 250 (Rs. 3,250) to $ 270 (Rs. 3,510).*

The publication, The World Bank Atlas 1987 *gave the Indian GNP per capita as $ 260 in 1984 and $ 250 in 1985. And the latest figures released on September, 30 1987, give the figure for both 1985 and 1986 as $ 270 per capita.*

Pakistan's per capita both in 1985 and 1986 is put at $ 387. It was the same as during 1984.

China's per capita income has been decreased by $ 30. China's per capita GNP both in 1984 and 1985 was $ 310.

The figures released by the World Bank show that while the 1985 figure was $ 310, the 1986 figure is only $ 280.

Bangladesh registered an increase of $ 10 per capita in 1986 — from $ 150 in 1985. Bhutan's per capita was $ 160 in 1985 and it remains unchanged in 1986.

Sri Lanka, in terms of GNP, is comparatively the richest in the subcontinent. Its per capita GNP in 1985 is put at $ 380 and in 1986 at $ 400.

(However according to Indian official estimate, the per capita income of the country during 1985-86 was Rs. 2595.6 at current price and Rs. 797.7 at constant (1970-71) prices, it was announced in the Rajya Sabha on November 12, 1987.)

* * * *

The Reserve Bank of India has requested the public to desist from defacing currency notes with slogans, messages, etc. and to handle them with care.

It has also warned the public that under the Legal Tender Inscribed Notes Act 1964 any currency note with slogans and messages of a political nature written across it ceases to be legal tender and the value of such a note cannot be claimed by the holder as of right.

INDIA'S ECONOMIC GOAL SHOULD BE GROWTH-LED EXPORT

L. K. Jha

Ever since independence, we have, in successive plans, been pursuing the triple objectives of growth, social justice and self-reliance. It is my contention that we should, by the end of the century, succeed in having a sustained growth rate of 7% per annum, eradicating poverty and no longer be in need of external financial assistance.

Initially, the main hurdle in the way of raising the growth rate was the paucity of capital. The savings level of less than 10% of the Gross Domestic Product was a major constraint in stepping up levels of investment and raising the growth rate. Through heroic efforts of additional resource mobilization—mainly through massive doses of taxation—we succeeded in doubling the rate of savings in the first quarter of a century of planned development.

But there was no corresponding spurt in the rate of growth. Overall, it stood around 3.5%—which the late Prof. Raj Krishna used laughingly to call the Hindu rate of growth. Although in recent years, there has been an improvement in the trend, growth rate to 4% and higher, it is not good enough. With the present level of investment, around 5% of the GDP, to step up our rate of growth to 7%, we do not need a fresh dose of additional resource mobilization but a more efficient use of capital.

Efficiency in the use of capital is measured either by the Incremental Capital Output Ratio (ICOR), which means how many units of capital are needed to give one unit of output or by asking the same question in reverse. What is the percentage of additional output per unit of investment? Our Incremental Capital Output Ratio or ICOR for the decade of 1960's was 6.4.

Our ICOR is higher than it is in Pakistan or Bangladesh. The ICOR of Indonesia and Brazil is less than 3. Again, looking at the additional output per unit of investment, the figure in India is 15 per cent, in Bangladesh 22 per cent, in Pakistan 28 per cent, in Indonesia 40 per cent and in Brazil 35 per cent. The sad fact is that while in terms of our level of savings we surpass most developing countries, in terms of our rate of growth, we are far, far behind.

The very fact that we were short of capital has encouraged us to rely excessively on capital as the principal resource in all our developmental projects as well as in the pursuit of social justice. We have paid scant attention to land and labour which are equally important resources and are not as scarce as capital. Thus little attention was paid to raising the productivity of land by giving adequate priority to agriculture. It was not until the mid-sixties, when successive droughts drove home the dangers, economic, social and political of the country not producing enough foodgrains to feed our rising population, that we gave to agriculture the importance it deserved. The Green Revolution followed and it is the step-up in the rate of agricultural growth which led to an improvement in the over-all rate of growth, even when the rate of industrial growth was declining.

Even today, there are vast areas in the country where agriculture productivity is still very low. Through policies of land reform, adequate attention to minor irrigation and water management, they can make a significant contribution to raising the growth rate, without heavy capital outlays.

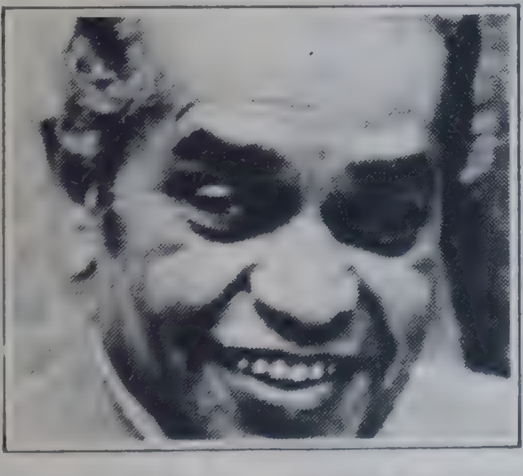
With our surplus of manpower and with the very proper concern we feel over the rising level of unemployment, we should have given every encouragement to setting up industries which were by their nature labour-intensive. Instead we made the large capital-intensive industries in the public sector uneconomic by saddling them with far more labour than they needed. As a result, their costs went up and profits went down, even becoming negative.

I am not arguing against capital-intensive industries as such. It was but right and proper that we began developing our capital goods industries as well as steel and oil refineries because they had to be there to provide the base for the expansion of lighter industries which are labour-intensive. But the tragedy was that when the capacity for producing in the country the machinery for the manufacture of lighter consumer products had been established, the expansion of the latter was kept under leash.

As a result, the machine-building industries had much idle capacity and could not make the contribution to growth which they should have. Thus, we had the sorry spectacle of the country facing a tremendous shortage of cement, which had to be met by imports, while the expansion of the domestic cement industry was hampered by a variety of controls and the capacity for manufacturing cement machinery was largely idle.

Fortunately, many corrective steps have been taken to remove these obstacles to higher growth. Many controls have been liberalised and the process is still continuing. At the same time, some other steps are ncessary if liberalisation is to give all the benefits that can accrue from it.

The most important change in policy which I would urge in the interest of accelerating the tempo of growth is to do away with the concept that plan resources are to be committed to new projects only, while the maintenance of old projects has to be taken care of from non-plan resources. Now, if adequate allocations for maintaining the productivity raising the output from old investments could be made out of non-plan resources, there might have been some justification for such a demarcation.



In actual fact, there are some mounting demands on non-plan resources on account of defence, the rising expenditure on the pay and dearness allowances of government servants and interest charges on past government borrowings, which cannot be resisted or curbed. So the availability of non-plan resources for the maintenance of older projects keeps steadily shrinking. In consequence, their output goes down, even while new investments in the same field are being made to get additional output by making much larger outlays on creating new capacity. In order to make efficient use of capital, I suggest that in the allocation of plan resources, the criterion should be of investing capital wherever its contribution to output would be the highest. Here again an example would help.

In order to step up growth rate and lower costs, the induction of fresh technology is essential. This has to be done not just by a symbolic presence of high-tech industries like television and computers but by applying technology to every field of production and at every level of production including literally the grass roots level.

Similarly, in the industrial economy, it can lead to cheapness and improvement of quality by conserving on the use of scarce resources like energy, introducing new designs and improving the quality and durability of every product. Only then can India enter the 21st century with an economy which is strong and self reliant. I therefore welcome the policy of subjecting domestic industry to greater competition, internal and external, by embarking upon, what is loosely referred to as liberalisation.

The basic point to remember is that self-reliance for a country of the size of India must mean much more than a mere balancing of country's payments account by achieving parity between earning and expenditure, by cutting down the latter

(Excerpts from the Govind Ballabh Pant Memorial Lecture) therefore, needed to strengthen marketing arrangements, which would provide real support to the oilseeds growers.

During the five years 1980-81 to 1985-86, higher growth rate in GNP has been achieved by the *tertiary sector,* as compared to the growth of the commodity producing sectors like agriculture and manufacturing. During the period, while the gross value added in agriculture and manufacturing registered growth rates of 2.7 per cent and 5.9 per cent respectively, that in the tertiary sector was 7.4 per cent.

The tertiary sector now contributes 40 per cent of gross domestic product (GDP). Although the growth in the tertiary sector is a sign of growing diversification of the economy, with a growing population, a large country like India will need a vibrant commodity producing sector for achieving economic growth on a sustained basis.

Measures to control *population* should be given top priority. Family planning incentives provided at present are meagre. Some observers feel that the benefits to the society from a cash incentive of even Rs. 5,000 per person in this regard would be more than from a expensive programmes like the integrated rural development programme (IRDP).

A major reason for the *drought* is the massive deforestation and subsequent loss of green cover. Large scale reforestation programme will have to be taken up.

This is, no doubt, a long-term programme. In the meantime, dry farming can be extended. Cropping pattern too can be changed and short duration crop varieties, resistant to water-logging and droughts, can be selected.

Strategies for avoiding floods and subsequent destruction, in some parts of the country also needs to be evolved. Simultaneously, hydro generation of power can be augmented by undertaking long-term programmes.

Since the *industrial sector* will have to provide the main support to the Seventh Plan growth rate, in view of the poor performance of the agricultural sector, it has become necessary to ensure that this sector is able to achieve the targeted growth rate.

The new index of industrial production, with its base as 1980-81 has recorded a growth of 8.6 per cent in 1984-85 and 8.7 per cent in 1985-86. During 1986-87, the index is expected to register a rise of around seven per cent. Several industries like fertiliser, coal, saleable steel and jeeps have been facing the problem of accumulation of stocks, indicating a mismatch between production and offtake. The weakening of demand in some industries is attributed to the slackness on the agricultural front. Some industries have had to face unfair competition from large scale inputs.

While some inbalance between capacity and demand is unavoidable, in the current stage of transition from a protected to a more competitive environment through which the Indian industry is passing, the industrial sector can be expected to achieve resilienace in due course.

While permitting liberalised imports, it is necessary to watch the undue strains on the country's balance of payments. Timely fiscal incentives for broadening the market can help many industries. At the same time, incentives for achieving economies of scale of production, employing high technology need to be provided in certain sectors of industry.

In the context of the deteriorating *balance of trade* position, concerted efforts are needed to boost exports of non-traditional items. Although exports have shown a rise in the current year, the growth rate needs to be accelerated.

The *capital market* exhibited mixed trends. While approvals and new capital issues were higher than in the previous year, the response to the new issues in the primary market from the investors was not-too-encouraging. This was mainly because the share — markets behaved erratically during the year. This naturally had an adverse impact on the primary market.

In recent years, the capital market has been growing steadily. This has enabled large corporations in both the private and public sectors to raise considerable resources for financing their rising investment needs. The new issues market, which was buoyant during 1985-86, turned cautious subsequently.

There is need to improve the market structure as well as the systems, procedures and technology to render prompt and efficient services to the investors. The stock exchanges have undertaken mechanisation and computerisation programmes. The progress is, however, quite slow.

The decision to permit private limited

Inflation 7.5% in 1986-87

The country's inflation rate in the fiscal year 1986-87 works out to 7.5 per cent, which is lower than the 8.9 per cent registered in 1985-86, the inaugural year of the seventh plan.

An analysis of the Labour Bureau's consumer price index (CPI) for industrial workers shows that the 1986-87 inflation rate was also considerably lower than every year of the sixth plan (1980-85), except in 1984-85, when inflation touched a nadir of five per cent.

The all-India CPI (1960 = 100) remained stationary at 686 points in March this year, against a rise of five points between February and March 1986. The average for the 12 months ended March 1987, at 674, was higher than the average for 12 months ended March 1986, at 620, by 8.7 per cent.

Inflation rate as measured by the Consumer Price Index numbers (CPI) for urban non-manual employees was the highest in Meerut at 17.7 per cent during June 1987 over the corresponding month of 1986. The comparable increase last year was only 4.2 per cent. The index for this centre stood at 645 (1960 = 100) in June 1987.

Other centres which showed similar sharp rise in CPI during June 1987, include Madras 12.4 per cent (8.0 per cent last year), Trivandrum 12.0 per cent (5.6 per cent), Jammu 10.5 per cent (8.0 per cent), Delhi 9.9 per cent (5.6 per cent) and Gulbarga 9.8 per cent (4.2 per cent).

The centres which recorded lowest inflation rates during June 1987 over the year ago level are: Bhopal 2.2 per cent (8.5 per cent last year), Sambalpur 2.9 per cent (10.4 per cent), Jodhpur 3.0 per cent (6.3 per cent) and Nagpur 4.3 per cent (4.3 per cent) (Table).

In terms of the CPI for urban non-manual employees, the real worth of the rupee was only 13.40 paise in Trivandrum in June 1987; it was 13.79 paise in Madras, 13.87 paise in Jaipur and 13.95 paise in Gulbarga.

The value of the rupee was highest at 18.05 paise in Calcutta, 17.67 paise in Ajmer, 17.61 paise in Shimla, 17.30 paise in Visakhapatnam and 17.04 paise in Amritsar.

The All India CPI for urban non-manual employees stood at 645 in June showing 7.7 per cent increase over the corresponding month of 1986.

Inflation rate in various centres (as measured by CPI for urban non-manual employees 1960 = 100)

Centres	June 1987 over June 1986	All India	7.7
1. Meerut	17.7	11. Bhopal	2.2
2. Madras	12.4	12. Sambalpur	2.9
3. Trivandrum	12.0	13. Jodhpur	3.0
4. Jammu	10.5	14. Visakhapatnam	4.2
5. Delhi	9.9	15. Nagpur	4.3
6. Gulbarga	9.8	16. Cuttack	4.7
7. Bangalore	9.4	17. Ajmer	4.8
8. Agra	9.4	18. Mangalore	5.0
9. Bombay	9.3	19. Hubli Dharwar	5.2
10. Kozhikode	9.3	20. Rajkot	5.7

companies and institutions to become members of the stock exchange is expected to help the stock exchanges in rendering improved services to the investing community in the coming years, this might lead to a process of consolidation of membership on the stock exchanges. While the large firms engaged in this business will be able to render the services to a large body of investors, small brokers operating at present can expect to assist the big firms in putting through transactions on the stock exchange.

The regulatory mechanism of the stock exchange governing boards needs to be tightened further. As the number of investors grows and more companies get their securities listed on the stock exchanges, the volume of business on the stock exchanges is bound to grow. To handle such a large volume, streamlining of the procedures and systems will be needed.

The all-India Economic Times index for ordinary share prices showed a marginal rise of 6.5 per cent over the year against the net rise of 14 per cent and 58 per cent, respectively, in the previous two years.

The Union budget for 1987-88 proved to be disappointing for the market. Budget proposals, like inserting a new section 194 E and imposition of a tax on at least 30 per cent of the book profit of companies had a dampening impact on the market sentiment. No doubt, the proposal to introduce the new section 194 E was withdrawn later and the rigours of the minimum tax on corporate profits were softened. But these did not have any perceptible impact on the market sentiment.

Markets were hoping for a good monsoon, but these hopes were also belied. Extensive drought conditions in some parts and floods in some other parts necessitated diverting government funds. It was, therefore, feared that additional taxation for meeting a part of the expenditure to finance drought and flood reliefs measures might be needed.

Sharebrokers in Bombay abstained from trading for a few days in September, as a protest against the continuing restrictions on trading in specified shares.

It is generally expected that normalcy will be restored soon and that the market can hope for better days if the government proves successful on taking measures for reviving the

The Death of An Economist

Gunnar Myrdal, who died in May 1987 was an economist with unbridled sympathy for the fledgling Third World countries.

Like all great economists, Myrdal was much more than just an economist. He won the Nobel prize for economics when the profession as a whole was swinging towards a conservative approach that was anathema to him personally. There is something of an irony in the fact that his co-recipient in that year was F. Von Hayek, arch-priest of monetarism that was then sweeping western academia and to a lesser extent, governments as well.

Gunnar Myrdal by contrast, was the most liberal of liberal Kynesians and the economic architect of Sweden's advanced welfare economy. His place of honour in the history of his own country is assured. His wife, Alva Myrdal, who passed away a few years ago, also won a Nobel prize — the Nobel prize for peace, and together, husband and wife formed one of the most famous and respected couples in the world.

His books, the three volume Asian Drama *and* A Challenge To World Poverty *were as much sociological as economic treatises and in fact he combined the professional talents of both as well as a compassion for the have-nots that was in the very best traditions of western humanism. Not many might remember that it was he who in the nineteen forties wrote* The American Dilemma, *which for a long time afterwards remained the definitive work on America's racial problem.*

economy. Ultimately, the strength of the capital market rests on the performance of the corporate sector. Investors' confidence can be expected to revive when the corporate sector starts turning out improved results.

For the second year in succession, the *balance of payments* remained under pressure in 1986-87. Export growth during the year was strong in volume terms. The drop in international oil prices provided a saving of over Rs. 2,100 crores in oil import bill during the year. The rapid rise in non-oil imports, however, continued.

India will, however, have to be watchful about certain disquieting features in the international scene. These include subdued growth rate in the industrial countries and not-too-bright prospects for improvement in world trade. The rise in international oil prices is likely to add to India's oil import bill. The prospects for concessional assistance are unsatisfactory. In this context, India might have to resort to larger commercial borrowings. There is not much room for drawing down of foreign exchange reserves for financing the current account deficits. Thus a vigorous export drive and careful planning of imports will be needed.

(Excerpts from an evaluation by D. G. Gupte in Times of India)

INDIA: BASIC FACTS

Capital : New Delhi
Area : 3 287 263 sq km
Population (1981) : 685 184 692
Population (1986) : 762 000 000
Density of population (1981) : 216/sq km
Literacy : 36.2%
„ Male : 46.9%
„ Female : 24.8%
Female-Male ratio : 934 female for 1000 male
Rural population : 76.7%
Urban population : 23.8%
Birth rate (for thousand) : 33.8
Death rate (for thousand) : 12.5
Child mortality for a thousand births : 114
Average life Expectancy (1981) : 54 yrs
National income (1984-85) : Rs.57014 crore (1970-71 price level)
Annual per capita Income (Average) 1984-85 : Rs.2344
States : 25

Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Goa, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh, West Bengal.

Union Territories : 7

(Andaman & Nicobar Islands, Chandigarh, Dadra Nagerhaveli, Delhi, Daman and Diu, Lakshadweep and Pondicherry)

THE COUNTRY

India occupies a strategic position in Asia, looking across the seas to Arabia and Africa on the West and to Burma, Malaysia and the Indonesian Archipelago on the East. Geographically, the Himalayan ranges kept India apart from the rest of Asia.

The fertility of the Indo-Gangetic belt, however, had proved to be such an irresistible magnet that hordes of people had pressed into India through the mountain passes from ancient times.

India lies to the north of the equator between 8° 4′ and 37° 6′ north latitude and 68° 7′ and 97° 25′ east longitude. It is bounded on the south west by the Arabian Sea and on the south east by the Bay of Bengal. On the north, north east and north west lie the Himalayan ranges. The southern tip, Kanyakumari is washed by the Indian Ocean.

India measures 3214 km from the north to south and 2933 km from east to west with the total land area of 3,287,263 sq km It has a land

India's New First Citizen

India's new President Mr. Ramaswamy Venkataraman's political career spans nearly half a century.

A postgraduate in economics and a bachelor of law, Mr. Venkataraman evinced keen interest in the law pertaining to labour early in his career. He started practice at the Madras High Court in 1935 and later moved to the Supreme Court.

He came to be intimately associated with trade union activity, founding or leading several unions, including those for plantation workers, estate staff, dock workers, railway workers, and working journalists. This led to his increasing association with politics.

Mr. Venkataraman, who will be 77 this December, has held portfolios of the ministries of labour, industries, corporation, power, transport and commercial taxes in the erstwhile State of Madras.

While practising law, he was drawn into India's freedom movement. In 1946, when the tranfer of power from Britain to India was imminent, the Government of India included him on the panel of lawyers sent to Malaya and Singapore to defend Indian nationals charged with offences of collaboration during the Japanese occupation of those two places.

He was elected to free India's provisional Parliament (1950-52) and to the first Parliament (1952-1957). He was also secretary to the Congress Parliamentary Party in 1953-54.

In 1957, Mr. Venkataraman was reelected to the Lok Sabha but he resigned to join the State Government of Madras as Minister. During his decade-long stint in Madras politics, from 1957 to 1967, Mr. Venkataraman was also the leader of the Madras Legislative Council.

In 1977, Mr. Venkataraman was elected to the Lok Sabha from Madras (South) constituency and served as an opposition member of Parliament and chairman of Public Accounts Committee.

He was re-elected to the Lok Sabha from Madras (South) constituency in 1980 and was appointed Union Minister of Finance in the Indira Gandhi Government. In 1982, he took charge of Defence till August 1984 when he was elected Vice-President of India.

Mr. Venkataraman was the Indian delegate to the United Nations General Assembly in 1953, 1955, 1958, 1959, 1960 and 1961. He was leader of the Indian delegation to the 42nd session of the International Labour Conference at Geneva in 1958.

Born in the village of Rajamadam, Thanjavur district of Tamil Nadu, Mr. Venkataraman was educated locally and then in the city of Madras. He is a keen photographer and tennis player.

frontier of 15200 km and a coastline of 7516.5 km Andaman and Nicobar islands in the Bay of Bengal and Lakshadweep (islands) in the Arabian Sea are parts of the territory of India.

India shares its political borders with Pakistan on the west and Bangladesh and Burma on the east. The northern boundary is made up of the Sinkiang province of China, Tibet, Nepal and Bhutan.

India has seven major physiographic regions: (1) Northern Mountains including the Himalayas and the mountain ranges in the north-east. (2) The Indo-Gangetic plain, (3) Central Highlands, (4) Peninsular plateau, (5) East Coast, (6) West Coast, (7) Bordering seas and islands.

All the major land forms, hills, mountains, plateaus and plains, are well represented in India. Much of the land surface of India has developed a plateau character. There are extensive plains either flat or rolling at levels ranging from 300 to 900 metres, dotted with conical or rounded hills or traversed by flat-topped ridges. These are mostly in the central highlands and the peninsular plateau of the Deccan.

The alluvial plains, however, have been the most important land area in India, historically. In the Indo-Gangetic belt, level lands thick with lush vegetation stretch for miles and miles. These plains have lured successive streams of invaders into India—the Aryans, the Scythians, the Huns, the Pathans and the Mongols. They have fostered the growth of great empires like those of the Mauryas, the Guptas and the Mughals.

India has seven principal mountain ranges: (1) the Himalayas, (2) the Patkai and other ranges bordering India in the north and north east, (3) the Vindhyas, which separates the Indo-Gangetic plain from the Deccan Plateau, (4) the Satpura, (5) the Aravalli, (6) the Sahyadri, which covers the eastern fringe of the West Coast plains and (7) the Eastern Ghats, irregularly scattered on the East Coast of India and forming the boundary of the East Coast plains.

Himalayas, the highest mountain-system in the world, is also one of the world's youngest mountain ranges. It extends practically uninterruped for a distance of some 2500 km and covers an area of about 500,000 sq km It contains the world's highest mountain peak, *Everest* and some ten peaks rising above 7500 m. It appears to have risen as a result of a collision between the drifting Indian (peninsular) plate and the Tibetan plate of South Asia about 50 million years ago. The Himalayas reached their present heights much later.

Patkai and allied mountain ranges run along the Indo-Bangladesh-Burma border and may collectively be called *Purvachal* or eastern mountains. These ranges forming an arc must have come into existence along with the Himalayas.

Aravalli range in north-western India is one of the oldest mountain systems in the world. The present Aravalli range is only a remnant of the gigantic system that existed in prehistoric times with several of its summits rising above the snow line and nourishing glaciers of stupendous magnitude which in turn fed many great rivers.

Vindhyan range traverses nearly the whole width of Peninsular India—a distance of about 1050 km with an average elevation of some 300 metres. The Vindhyan range appears to have been formed by the weathered products of the ancient Aravalli ranges.

Satpura range, another ancient mountain system, extends for a distance of 900 km with many of its peaks rising above 1000 metres. It is triangular in shape, with its apex at Ratnapuri and two sides running parallel to the Narmada and Tapti rivers.

Sahyadri, or Western Ghats, with an average height of 1200 metres, is about 1600 km long and runs along the western border of the Deccan Plateau, from the mouth of the river Tapti to Cape Comorin (Kanyakumari), the southernmost point of India. It overlooks the Arabian Sea, and catches the full force of the monsoon winds, thus precipitating heavy rains on the West Coast.

Eastern Ghats, bordering the East Coast of India, is cut up by the powerful rivers into discontinuous blocks of mountains. In its northern parts between the Godavari and Mahanadi rivers it rises to above 1000 metres.

There are three main watersheds in India. (1) Himalayan range with its Karakoram branch in the north, (2) Vindhyan and Satpura ranges in Central India and (3) Sahyadri or Western Ghats on the West Coast. All the major rivers of India originate in one or the other of these watersheds.

The main rivers of the Himalayan group are *the Indus, the Ganga* and *the Brahmaputra.* These rivers are both snow-fed and rain-fed and have therefore continuous flow throughout the year. Himalayan rivers discharge about 70 per cent of their inflow into the sea. This includes about 5 percent from central Indian rivers. They join the Ganga and drain into the Bay of Bengal.

The Indus, which the Aryans called the Sindhu, has lent its name to India. Its valleys on boths sides have been the seat of a civilization, that was not only older but also superior in many respects to the fabled civilizations of Sumeria and Egypt. This historic river has five major tributaries—the Jhelum, the Chenab, the Ravi, the Beas and the Sutlej. These in turn have inspired the name Punjab (punj=five & ab=river), the Land of Five Rivers. The Indus rises from Mount Kailas in Tibet and traverses many miles through the Himalayas before it is joined by its tributaries in the Punjab. Thereafter it passes into Sind (Pakistan) to fall into the Arabian Sea.

The Ganga, famous alike in legend and history, is considered the most sacred river by the Hindus. It covers, what is called the heartland of India, which was the main centre of the ancient Aryan culture. It rises near the glacier, Gangotri in the Himalayas and flows through Uttar Pradesh, Bihar and Bengal to fall into the Bay of Bengal. Ganga and its tributaries Jamuna, Gomti, Garga, Sarda, Gandak, Chambal, Sone and Kosi, spread out like a fan in the plain of India thus forming the largest river basin in India, with an area, one quarter of the total area of India.

The Brahmaputra, rising in Western Tibet, flows for some 800 miles through the Himalayas, then turns south-west and then south, joining the easternmost branch of the Ganga—the Padma—and empties together with Ganga into the Bay of Bengal.

The rivers of Deccan denuding their beds for long geological ages have developed flat valleys with low gradients. The major Deccan rivers are the *Godavari,* the *Krishna,* the *Cauvery,* the *Pennar,* the *Mahanadi,* the *Damodar,* the *Sharavati,* the *Netravati,* the *Bharatapuzha,* the *Periyar,* the *Pamba,* the *Narmada* and the *Tapti.* These rivers are entirely rain-fed with the result that many of them shrink into rivulets during the hot season. The Deccan rivers contribute about 30 percent of the total outflow in India. Of this, the rivers that flow from west to east account for 20 per cent and those from east to west about 10 per cent.

Biosphere Reserves

Thirteen biosphere reserves representing twelve bio-geographic regions and aimed at studying and preserving India's biological diversity are coming up in different parts of the country.

Four biosphere reserves are to come up at Uttarakhand (Uttar Pradesh), the Gulf of Mannar (Tamil Nadu), Namdapha (Arunachal Pradesh) and Nokrek (Meghalaya). The Uttar Pradesh Government is also demarcating area for a biosphere reserve in the Nanda Devi region.

Project documents on biosphere reserves in the Thar desert, Rann of Kutch and the Sunderbans are being finalised while the Nilgiri bio-sphere reserve came into being in September last year.

The *Godavari,* the *Krishna,* the *Cauvery* and the *Pennar* all rise in the Western Ghats and traverse the plateau and the East Coast, to fall into the Bay of Bengal. The Godavari has the second largest river basin in India, comprising about 10 per cent of the total delta area of India. The Krishna basin is the second largest in the Peninsula, and the third largest in the whole of India.

The *Mahanadi* and the *Damodar* rise in the north west of the plateau and flow east into the Bay of Bengal. The Mahanadi forms the third biggest basin in the peninsula and fourth in all India.

The *Narmada* and the *Tapti* rising in the northernmost extremity of the plateau fall into the Gulf of Cambay in the Arabian Sea. The Narmada has a fairly extensive basin, next only to those of the *Krishna* and the *Mahanadi.* Rivers the *Sharavati,* the *Netravati,* the *Bharatapuzha,* the *Periyar* and the *Pamba* rise in the Western Ghats and cross the West Coast to fall into the Arabian Sea. These rivers are comparatively small with limited catchment areas and minor basins.

THE PEOPLE

The people of India are largely the descendants of immigrants from across the Himalayas. It is still debated whether any native race evolved on Indian soil.

We know that the species known as *Ramapithecus* was found in the Siwalik foothills of the north-western Himalayas. This species believed to be the first in the line of *hominids* (human family) lived some 14 million years ago. Recent researches have shown that a species resembling the *Australopithecus* lived in India some 2 million years ago. Even this discovery leaves an evolutionary gap of as much as 12 million years since Ramapithecus.

Very little research has been done regarding the ethnic origins of the Indian population. Perhaps it is of little import now. The fact is that the Indian population is polygenetic and is a confusing mixture of various racial strains. Few, if any, can claim to belong to any particular stock. Nevertheless, many Indians pride themselves on their Aryan descent.

The observations of Natwar Singh, minister-historian, are relevant in this context. Says Singh, "The unpalatable truth is, that for a vast number of people in north India, immaculate ancestry is a mirage. He is a brave man, who can with certitude prove his Aryan or Scythian descent. He, that has traced his birth to a mythological ancestor, has done so, to draw attention away from the intervening generations".*

We are giving below descriptions of the various races in India according to the classical pattern.

According to Dr. B.S. Guha, the population of India is derived from 6 main ethnic groups: 1. Negrito, 2. Proto-Australoids or Austrics, 3. Mongoloids, 4. Mediterranean or Dravidian, 5. Western Brachycephals and 6. Nordic Aryans.

Brachycephalic (broad headed) Negroids from Africa were the oldest people to have come to India. These people are now found only in patches among the hill tribes of south India *(Irulas, Kodars, Paniyans and Kurumbas)* on the mainland. But they survive in the Andaman Islands, where they have retained their language.† They are an inconsequential element in the population of India.

Proto-Australoids or Austrics were a race of people, with wavy hair plentifully distributed over their brown bodies, long heads with low foreheads and prominent eye-ridges, noses with low and broad roots, thick jaws, large palates and teeth and small chins.

The Austrics of India represent a race of medium height, dark (and in some cases black) complexion with long heads and rather flat noses but otherwise of regular features. Miscegenation with the earlier Negroids may be the reason for the dark or black pigmentation of the skin and flat noses. Austric tribes spread over the whole of India and then pass on to Burma, Malaya and the islands of South East Asia. "The Austrics form the bedrock of the people".††

The Austrics laid the foundation of Indian civilization. They cultivated rice and vegetables and made sugar from sugarcane. Their language has survived in the Kol or Munda speech, current in Eastern and Central India.

‡Dravidians comprise all the three subtypes, Paleo-Mediterranean, the true Mediterranean and Oriental Mediterranean. They appear to be people of the same stock as the peoples of Asia Minor and Crete and the pre-Hellenic Aegeans of Greece. They are reputed to have built up the city civilization of the Indus Valley, whose remains have been found at Mohenjodaro and Harappa and other Indus cities. The Dravidians must have spread to the whole of India, supplanting Austrics and Negritos alike.

Mongoloids of various types are confined to the north-eastern fringes of India, in Assam, Nagaland, Mizo, Garo and Jainti Hills. Generally, they are people of yellow complexion, oblique eyes, high cheekbones, sparse hair and medium height.

Nordic Aryans who migrated to India were a branch of Indo-Iranians, who had originally left their homes in Central Asia, some 5000 years ago, and had settled in Mesopotamia for some centuries. The Aryans must have come into India between 2000 and 1500 B.C. Their first home in India was western and northern Punjab, from where they spread to the Valley of the Ganga and beyond. The Aryans, coming into India, encountered the highly civilized Indus Valley people who had big towns, with fortifications and brick structures and many of the amenities of a quite high city civilization. The Indus people were essentially a city people while the Aryans were a pastoral race.

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* K.Natwar Singh: *Maharaj Suraj Mahal* (1707-1763).

† See Andaman & Nicobar Islands, infra.

†† Gazetteer of India.

‡ The term *Dravidian* is derived from the pre-Hellenic Lycians of Asia Minor who called themselves *Trmmili*, which the Greeks wrote as *Termilai*. *Termilai* became *Dramiza*. *Dramiza* evolved itself in two ways: (1) In the South among the Dravidians, the process was *dramiza—damiz—Tamiz* (moderm Tamil), (2) In the north, among the Aryans, *dramiza—dramila—dravida* (Dravidian)

Though it is not exactly known what happened to the Indus people or their civilization, it may be assumed that they intermingled with the incoming Aryans, who adopted the Indus culture as their own.

THE POPULATION

India has a population of 685,184,692 according to the census taken in 1981. But, the latest reckoning says that India's population has now grown to 72.2 crore and UNFPA projects a figure of 961,531,000 for 2000 A.D.

Although India accounts for only 2.4% of the total world area (world = 13589 million sq km India 3.28 million sq km), it contains about 15% of the world population.

The other top countries in point of population are: China 21.72%, U.S.S.R. 6.05% and U.S.A. 5.04%. India, with China, U.S.S.R. and U.S.A. accounts for nearly 50% (48.34) of the world population.

The first census, that had an all-India character, was taken in 1872. It was, however, a patchwork of census data taken in various parts of the country. The first regular census in India was taken in 1881. Thereafter, there have been regular censuses every 10 years. The 1981 census is the 12th census of India and the 4th since independence.

The population of India, as at sunrise on 1st March, 1981, was as follows: Total No. 685,184,692, Males: 354,467,000, Females: 330,717,692. These figures include the projected population for Assam where census could not be held in 1981 owing to disturbed conditions there.

The table given indicates the ranking of the States by population size in 1981 and 1971.

Except for a slight fall in 1911-21, the population of India has been steadily growing for the last 80 years (1901-1981). From 1951 onwards, the growth rate has been very high. In absolute terms, India's population has increased by 137 million in the decade 1971-81. This increase is 13 million more than the addition to the total population over the 50 years from 1901 to 1951.

All the States and Union Territories have had an increase in population but at differen rates, and except for a few areas, the addition in numbers between 1971 and 1981 is higher than that between 1961-71. It is only in the states of Kerala, Orissa, Tamil Nadu, Goa and in the Union Territory of Goa, Daman & Diu that the absolute increase in the decade 1971-81 is lower than that in the former decade.

The decadal growth rates in the three states Kerala, Orissa and Tamil Nadu have been much lower than in the other States. The absolute increase in the decade 1971-81, as compared with that during 1961-71 is particularly noticeable in the case of Bihar, Rajasthan and Uttar Pradesh. This is important in demographic terms.

While there is doubtless an absolute increase in most cases, it will be noticed that in quite a few States the percentage decadal growth rate in the decade 1971-81 has been lower than that in the decade 1961-71. This is so in the case of Gujarat, Haryana, Himachal Pradesh, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Orissa, Tami Nadu, Tripura, West Bengal and in the Union Territories of Andaman and Nicobar Islands, Arunachal Pradesh, Chandigarh, Delhi, Goa, Daman & Diu and Lakshadweep.

The decadal growth rate in the decade 1971-81 has been higher than the corresponding rate of the previous decade 1961-71 only in the states of Andhra Pradesh, Bihar, Karnataka, Nagaland, Punjab, Rajasthan, Sikkim, Uttar Pradesh and in the Union Territories of Dadra & Nagar Haveli and Mizoram.

The average density of population as revealed by the final population figures of 198 has been indicated in the table below: The highest densities in the country, with over

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* UNFPA: United Nations Fund for Population Activities.

India: Population Totals

India/State/ Union Territory	Population in 1971 (and rank)	Population in 1981 (and rank)	1981 (per sq km)
INDIA	548159652	685184692	216†
States			
Andhra Pradesh	43502708 (5)	53549673 (5)	195
Arunachal Pradesh	467511 (25)	631839 (24)	8
Assam*	14625152(13)	19896843(13)	254
Bihar	56353369 (2)	69914734 (2)	402
Goa	857771 (22)	1086730 (22)	285
Gujarat	26697475 (9)	34085799(10)	174
Haryana	10036808(15)	12922618(15)	292
Himachal Pradesh	3460434(18)	4280818(18)	77
Jammu & Kashmir	4616632(16)	5987389(17)	59
Karnataka	29299014 (8)	37135714 (8)	194
Kerala	21347375(12)	25453680(12)	655
Madhya Pradesh	42654119 (6)	5217844 (6)	118
Maharashtra	50412235 (3)	62784171 (3)	204
Manipur	1072753(20)	1420953(20)	64
Meghalaya	1011699(21)	1335819(21)	60
Mizoram	332390(26)	493756(26)	23
Nagaland	516449(23)	774930(23)	47
Orissa	21944615(11)	26370271(11)	169
Punjab	13551060(14)	16788915(14)	333
Rajasthan	25765806(10)	34261862(9)	100
Sikkim	209843(28)	316385(28)	45
Tamil Nadu	41199168 (7)	48408077(7)	372
Tripura	1556342(19)	2053058(19)	196
Uttar Pradesh	88341144 (1)	110862013 (1)	377
West Bengal	44312011 (4)	54580647 (4)	615
Union Territories			
Andaman and Nicobar Islands	115133(29)	188741(29)	23
Chandigarh	257251(27)	451610(27)	3961
Dadra & Nagar Haveli	74170(30)	103676(30)	211
Daman & Diu			
Delhi	4065698(17)	6220406(16)	4194
Lakshadweep	31810(31)	40249(31)	1258
Pondicherry	471707(24)	604471(25)	1229

*Projected figures for 1981.

1000 persons to the sq km are shown by 4 Union Territories, namely Delhi (4178), Chandigarh (3948), Lakshadweep (1257) and Pondicherry (1228).

Delhi and Chandigarh are cities with peripheral rural areas. Lakshadweep and Pondicherry are comparatively small in area. There is not much point in comparing their densities with those of States. However, among the rest of the Territories and all the States, Kerala reports the highest density with 654 persons to the sq km followed by West Bengal with 615.

Density

(In descending order)

State/Territory	Density per sq km 1981	1971
1 Delhi	4194	2742
2 Chandigarh	3961	2257
3 Lakshadweep	1258	994

4	Pondicherry	1229	959
5	Kerala	655	549
6	West Bengal	615	499
7	Bihar	402	324
8	Uttar Pradesh	377	300
9	Tamil Nadu	372	317
10	Punjab	333	269
11	Haryana	292	227
12	Goa, Daman & Diu	285	225
13	Assam	254	186
14	Dadra & Nagar Haveli	211	151
15	Maharashtra	204	164
16	Tripura	196	148
17	Andhra Pradesh	195	158
18	Karnataka	194	153
19	Gujarat	174	136
20	Orissa	169	141
21	Madhya Pradesh	118	94
22	Rajasthan	100	75
23	Himachal Pradesh	77	62
24	Manipur	64	48
25	Meghalaya	60	45
26	Nagaland	47	31
27	Sikkim	45	30
28	Andaman & Nicobar Islands	23	14
29	Mizoram	23	16
30	Arunachal Pradesh	8	6

The Sex Ratio is defined as the number of females per 1000 males in the population.

Sex Ratio 1901–1981

Year			Ratio
1901	—	—	972
1911	—	—	964
1921	—	—	955
1931	—	—	950
1941	—	—	945
1951	—	—	946
1961	—	—	941
1971	—	—	930
1981	—	—	938

The sex ratio has been generally adverse to women, i.e., the number of women per thousand men has generally been less than 1000. Apart from the fact that the sex ratio is adverse to women, it will also be noticed that the sex ratio has deteriorated over the decades. However, there is an apparent improvement in the sex ratio between 1971 and 1981.

It will be noticed that Kerala has the highest sex ratio of 1032 and is a solitary exception. In all the other States and Union Territories the sex ratio is adverse to women.

It is interesting to notice that certain States have had a fairly extended period where the sex ratio has been over one thousand, i.e., the sex ratio has been in favour of females. In the case of Kerala, the sex ratio has been throughout above 1000, while in Manipur, Orissa, Tamil Nadu, Goa, Daman & Diu, Lakshadweep and Mizoram it has been above 1000 for a considerable part of the period 1901 to 1981. On the other hand, the sex ratio has been constantly on the low side in comparison with other States and Union Territories in Haryana, Himachal Pradesh, Jammu and Kashmir, Pun-

Sex Ratio — States 1981

In descending order)

Rank	State/Territory		Sex Ratio
	India	...	933
1	Kerala	...	1032
2	Pondicherry	...	985
3	Orissa	...	981
4	Goa, Daman & Diu	...	981
5	Tamil Nadu	...	977
6	Lakshadweep	...	975
7	Andhra Pradesh	...	975
8	Dadra & Nagar Haveli	...	974
9	Himachal Pradesh	...	973
10	Manipur	...	971
11	Karnataka	...	963
12	Meghalaya	...	954
13	Tripura	...	946
14	Bihar	...	946
15	Gujarat	...	942
16	Madhya Pradesh	...	941
17	Maharashtra	...	937
18	Mizoram	...	919
19	Rajasthan	...	919
20	West Bengal	...	911
21	Assam	...	901
22	Jammu & Kashmir	...	892
23	Uttar Pradesh	...	885
24	Punjab	...	879
25	Haryana	...	870
26	Nagaland	...	863
27	Arunachal Pradesh	...	862
28	Sikkim	...	835
29	Delhi	...	808
30	Chandigarh	...	769
31	Andaman and Nicobar Islands	...	760

National Insignia

The State Emblem of India is an adaptation from the Sarnath Lion Capital of Asoka as preserved in the Sarnath Museum. the Government adoptd the emblem on 26 January, 1950, the day when India became a Republic.

In the original of Sarnath Capital, there are four lions, standing back to back, mounted on an abacus with a frieze carrying sculpture in high relief of an elephant, a galloping horse, a bull and a lion separated by interevening wheels (chakras) *over a bell-shaped lotus. Carved out of a single block of polished ṣandstone, the Capital is crowned by the Wheel of the Law (Dharma Chakra).*

In the State Emblem adopted by the Government only three lions are visible, the fourth being hidden from view. The wheel appears in relief in the centre of the abacus with a bull on the right and a horse on the left and the outlines of the other wheels on the extreme right and left. The bell-shaped lotus has been omitted. The words, Satyameva Jayate from the Mundaka Upanishad meaning 'Truth alone triumphs', are inscribed below the abacus in Devanagari script.

The National Flag is a horizonntal tri-colour of deep saffron (Kesari) at the top, white in the middle and dark green at the bottom in equal proportion. The ratio of the width of the flag to its length is two to three. In the centre of the white band is a wheel, in navy blue, which represents the Charkha.§ Its design is that of the wheel (Chakra) which appears on the abacus of the Sarnath Lion Capital of Asoka. Its diameter approximates the width of the white band. It has 24 spokes.

The design of the National Flag was adopted by the Constitutent Assembly of India on 22 July, 1947. Its use and display are regulated by a code.

Rabindranath Tagore's song Jana-gana-mana was adopted by the Constituent Assembly as the National Anthem of India on 24 Jan. 1950. The first stanza (out of 5 stanzas) of the song forms the National Anthem. It reads:

Jana-gana-mana-adhinayaka jaya he
Bharata-bhagya-vidhata
Punjaba-Sindhu-Guarata-Maratha-
Dravida-Utkala-Banga
Vindhya-Himachala-Yamuna-Ganga
Uchchhala-Jaladhi-taranga
Tava Subha name jage,
Tava subha asisa mage,
Gahe tava jaya-gatha,
Jana-gana-mangala-dayaka, jaya he
Bharata-bhagya-vidhata
Jayà he, jaya he, jaya he,
Jaya jaya jaya, jaya he.

The following is Tagore's English rendering of the stanza:

Thou art the ruler of the minds of all people,
Dispenser of India's destiny.
Thy name rouses the hearts of the Punjab, Sind, Gujarat and Maratha,
Of the Dravid and Orissa and Bengal.
It echoes in the hills of the Vindhyas and Himalayas, mingles in the music of the Jamuna and Ganges and is chanted by the waves of the Indian Sea.
They pray for thy blessings and sing thy priase.
The ṣaving of all people waits in thy hand,
Thou dispenser of India's distiny,
Victory, victory, victory to thee.

At the time of independence, the Govt. of India followed the Gregorian calendar based on the Christian era.

The National Government adopted the recommendation of the Calendar Reform Committee that the Saka era be adopted as the basis of the National Calendar. The Saka year has the normal 365 days and begins with Chaitra as its first month. The days of the Saka calendar have a permanent correspondence with the dates of the Gregorian Calendar, Chaitra 1 falling on March 22 in a normal year and on March 21 in a Leep Year. The National Calendar commenced on Chaitra 1 Saka, 1879 corresponding to March 22, 1957 A.D.

The months of the National Calendar, with their days and the dates of the Gregorian Calendar corresponding to the first day of the Saka month are given below:

Saka & Gregorian Calenders‡

1 Chaitra 30/31 days‡‡	March 22/21‡‡
1 Vaishaka 31	April 21
1 Jyaistha 31	May 22
1 Asadha 31	June 22
1 Sravana 31	July 23
1 Bhadra 31	Aug. 23
1 Asvina 30	Sept. 23
1 Kartika 30	Oct. 23
1 Agrahayana 30	Nov. 22
1 Pausa 30	Dec. 22
1 Magha 30	Jan. 21
1 Phalguna 30	Feb. 20

‡ As in 1982
‡‡ Leep Year

India's National Animal is Tiger and National Bird is Peacock.

§ Khadi Spinning Wheel

jab, Tripura, Andaman and Nicobar Islands, Chandigarh and Delhi. At this stage one would be reluctant to offer specific reasons for this phenomenon and this is an area, as mentioned earlier, of uncertainty which would merit more detailed consideration on the basis of further information.

One of the important characteristics on which information is obtained in the census is literacy. For the purpose of the census, a person is deemed literate if he or she can read and write with understanding in any language. A person who can merely read but cannot write is not defined as literate. Children below five years of age are treated as illiterate.

Literacy rates would be more meaningful if one were to exclude the population in the age group 0-4 from total population. However, at this stage, this information is not available since it would only be generated through further tabulations. Therefore, for practical purposes the entire population is being taken into account including the population in the age group 0-4.

The table below presents the figures for the country at each census year. In working out the rates for 1981, the population of Assam and Jammu and Kashmir have been excluded as the census has not yet been taken there. The rates upto 1941 are for undivided India.

Literacy 1901-1981

Year	Percentage	Males	Females
1901	5.35	9.83	0.60
1911	5.92	10.56	1.05
1921	7.16	12.21	1.81
1931	9.50	15.59	2.93
1941	16.10	24.90	7.30
1951	16.67	24.95	7.93
1961	24.02	34.44	12.95
1971	29.45	39.45	18.69
1981	36.17	46.74	24.88

One of the paradoxes in the Indian literacy situation is that while the percentage of literacy has been increasing every decade, the total number of illiterates has also been increasing. As between 1971 and 1981 the percentage has increased by nearly 7%. While this increase is reflected in the increase of literates by about 82 million the illiterates have also increased by 48 million as the following figures show.

States/Territories

Literacy ranking in 1981 and 1971*

Ranking in 1981	Percentage increase of literacy	Literacy rate 1981	Literacy rate 1971	Ranking in 1971	State/ Union Territory
1	Kerala	70.42	60.42	2	16.55
2	Chandigarh	64.68	61.56	1	5.07
3	Delhi	61.06	55.61	3	9.80
4	Mizoram	59.50	53.79	4	10.90
5	Goa, Daman & Diu	55.86	44.75	6	24.83
6	Lakshadweep	54.72	43.66	7	25.33
7	Pondicherry	54.23	46.02	5	17.84
8	Andaman & Nicobar Islands	51.27	43.59	8	17.62
9	Maharashtra	47.37	39.18	10	20.90
10	Tamil Nadu	45.78	39.46	9	16.02
11	Gujarat	43.75	35.79	11	22.24
12	Manipur	41.99	32.91	14	27.59
13	Nagaland	41.99	27.40	9	53.25
14	Himachal Pradesh	41.94	31.96	15	31.23
15	Tripura	41.58	30.98	17	34.22
16	West Bengal	40.88	33.20	13	23.13
17	Punjab	40.74	33.67	12	21.00
18	Karnataka	38.41	31.52	16	21.86
19	Haryana	35.84	26.89	20	33.28
20	Orissa	34.12	26.18	21	30.33
21	Sikkim	33.83	17.74	27	90.70
22	Meghalaya	33.22	29.49	18	12.65
23	Andhra Pradesh	29.94	24.57	22	21.86
24	Madhya Pradesh	27.82	22.14	23	25.65
25	Uttar Pradesh	27.38	21.70	24	26.18
26	Dadra & Nagar Haveli	26.60	14.97	28	77.69
27	Bihar	26.01	19.94	25	30.44
28	Rajasthan	24.05	19.07	26	26.11
29	Arunachal Pradesh	20.09	11.29	29	77.95

Excludes Assam and Jammu and Kashmir.

	Literates	Illiterates
1971	156,440,275	372,145,203
1981	237,991,932	419,933,693

Female literacy is of special importance in the Indian context because of the great disparity in male and female literacy rates. In

By 2000, 62% Will Live In Slums

The urban population of developing countries will reach a figure of 1.6 billion by 2000 A.D., and unless there is a major change, 62 per cent or almost one billion will be living in squatter colonies.

According to the national building organisation (NBO) there is a shortage of nearly 25 million housing units in India. If the trend continues, the shortage will increase to 33 million in 1995 and 39 million in 2000 A.D.

By the turn of century, the shortage in rural areas will be 29.8 million and in urban areas 9.3 million.

There are other estimates also — and all of them higher than those of the NBO. According to the maximum estimate given by Operations Reserach Group, Baroda, the housing shortage stood at 41.6 million in 1981.

Similar estimates of the Indian Institute of Management, Ahmedabad, Birla Institute of Scientific Research, New Delhi and the Federation of Indian Chamber of Commerce and Industry for the same year are 75.3 million, 126.4 million and 90.1 million, respectively.

The number of household in the country is expected to rise from 135 million in 1985 to 151 million in 1990, 167 million in 1995 and 187 million in 2001.

On the other hand, the useable housing stock is estimated to rise from 110 million in 1985 to 122 million in 1990, 134 million in 1995 and 148 million in 2001. The shortfall is obvious and the worst sufferers of the situation will be the poor.

Slum dwellers form 32 per cent of Delhi's population, 38 per cent of Bombay's *and 42 per cent of* Calcutta's *population.*

The Delhi Development Authority's (DDA) commissioner for the slums wing, Mr. Manjee Singh, admits that there are more than 600 jhuggi colonies where almost 12 lakh jhuggi dwellers live in sub-human conditions. According to Mr. Singh, the DDA has sought co-operation of all voluntary agencies to help improve the living conditions of these slum dewellers.

According to DDA estimates, nearly 1,44,000 migrants come to Delhi every year.

Calcutta which had three million people living in slums in 1981, is expected to have 4.3 million slum dwellers by 1990.

In Bombay their number is expected to increase from 2.8 million in 1981 to 4.1 million in 1990, while in Delhi and Madras the increase is expected to be from 1.8 million to 3.2 million and from 1.3 million to 2.1 million, respectively.

The situation is expected to be no better in the eight other metropolitan cities of Bangalore, Hyderabad, Ahmedabad, Kanpur, Pune, Nagpur, Lucknow and Jaipur.

According to estimates, by 1990 Bangalore will have about one million slum dwellers, Hyderabad 1.12 million, Ahmedabad 1.13 million, Kanpur 0.8 million, Pune .55 million, Nagpur .56 million, Lucknow .40 million and Jaipur .49 million.

At present, the Housing and Urban Development Corporation (HUDCO) is the only financial institution exclusively financing housing and urban development projects.

Since its inception in 1970, HUDCO has till March 1986, sanctioned 4,277 schemes at a project cost of over Rs. 3,194 crores. The tentative loan sanction target of HUDCO for the seventh plan is Rs. 1,845 crores.

1901 there were 1466 male literates for every 100 female literates. By 1931 the disparity was brought down to 560 males as against 100 females. Since 1950 the difference has been steadily whittled down bringing the ratio to 201 males for 100 females in 1981.

States & Union Territories
By ranges of female literacy

State/Union Territory	Per cent female literates	Percentage increase of fem. literacy 1971-81
Female Literacy 50% and above		
Kerala	64.48	18.73
Chandigarh	59.30	9.11
Mizoram	52.57	12.55
Delhi	52.56	10.07
Female Literacy 25%—50%		
Goa, Daman & Diu	46.78	33.31
Pondicherry	44.30	27.96
Lakshadweep	44.21	44.67
Andaman and Nicobar Islands	41.85	34.52
Maharashtra	35.08	32.73
Punjab	34.14	31.81
Tamil Nadu	34.12	27.03
Nagaland	33.72	80.80
Gujarat	32.31	30.55
Tripura	31.60	49.13
Himachal Pradesh	31.39	55.17
Manipur	30.69	57.14
West Bengal	30.33	35.28
Meghalaya	29.28	19.22
Karnataka	27.83	52.71
Female Literacy less than 25%		
Haryana	22.23	49.29
Sikkim	22.07	147.98
Orissa	21.11	51.65
Andhra Pradesh	20.52	30.29
Dadra & Nagar Haveli	16.75	113.65
Madhya Pradesh	15.54	42.31
Uttar Pradesh	14.42	36.68
Bihar	13.58	55.73
Rajasthan	11.32	33.81
Arunachal Pradesh	11.02	197.04

Progress of Female Literacy
1901-1981

Year	Number of literates		Literate males per 100 lit. females
	Males	Females	
1901	11870758	809580	1466
1911	13552737	1298484	1043
1921	15690428	2221499	1208
1931	22274036	3977034	560
1941	NA	NA	NA
1951	46272335	13916683	332
1961	77906038	27565962	283
1971	112012994	49423270	227
1981	158837215*	79154717*	201

* Excludes Assam and Jammu and Kashmir. 'NA' stands for not available.

RELIGIOUS COMMUNITIES

The major religious communities of India are the Hindus, Muslims, Christians, Sikhs, Buddhists, Jains and Parsis. Of these the last two are numerically insignificant but they are important in other ways.

Of the 665,287,849 people in India in 1981 (Assam not included), the Hindus account for the largest community with 549,779,481 members. Other communities are divided as follows:

Muslims: 75,512,439, Christians: 16,165,447, Sikhs: 13,078,146, Buddhists: 4,719,796, Jains: 3,206,038, Other Religions: 2,766,285, Religions not stated: 60,217.

The Scheduled Castes and Scheduled Tribes who are part of the Hindu community form over 23.51% of the total population, about 156 million.

The data of the 1981 census offers some other statistics also of interest to religious sociologists. The Appendix of the Household Population gives 183 subdivisions that are grouped together in the general statistics as "other religions and persuasions."

Of these, 71,630 are Zoroastrians, and 5,618 Jews.

There are 25,416 "Adivasis" by religion and there are 1,367 "tribals" (in Nagaland), 119 "animists", and 25,985 whose religion is simply "Non-Christian" (in Manipur, Meghalaya and

Nagaland), together with 796 "pagans" in the same three States, and 1,215 "Meathan" in Manipur.

Some other tribals have given their specific tribal identity as their religions: as for example, the census has the record of 484 Oraons, 32,252 Santals, 1,481 Garos, 6,975 Gonds, 4,133 Hos, 148,437 Khasis, 1,160 Mundas, 1,296 Nagas.

Nirankaris, numbering 3382, of apparently Hindu following, have entered themselves under geographical or caste terms like Agarwal, Bengali, Gujarati, Maharashtrian, Marathi, Marwari, Malayalee, Tamilian and Teluguite.

Perhaps of more interest is that a total of 29,086 persons corresponding to 5,117 households consider themselves as "atheists" (predominantly in rural areas of Tamil Nadu, Maharashtra, Madhya Pradesh, Manipur and Bihar). There are 816 humanists ("manab dharma"), half of them in Maharashtra.

Census of 1981 gives some other interesting data too.

"The total fertility rate in India (excluding Assam) is 3.9 in rural areas, 2.8 in urban areas, and 3.6 for total areas.

"It may be noted that fertility is higher among Muslims, followed by Buddhists, Hindus, Sikhs, Jains and Christians.

"At the national level, the total fertility rate for both Jains and Christians is identical, being 2.6. However, both in rural and urban areas the fertility of Jains is higher than that of Christians.

Religious Members

Religions	Membership	Percentage
Hindus	549,779,481	82.64
Muslims	75,512,439	11.35
Christians	16,165,447	2.43
Sikhs	13,078,146	1.96
Buddhists	4,719,796	0.71
Jains	3,206,038	0.48
Other Religions	2,766,285	0.42
Religion not stated	60,217	0.01

"This apparent contradiction in the total fertility rate for all areas is due to the rural-urban distribution differentials in these groups."

The total fertility rate for Sikhs is 3.4, for Hindus and Budhists 3.6 and for Muslims 4.1.

The Christian female ratio compared to the males is by far the highest among the various communities. They have for every 1,000 males, 992 females; while Buddhists have 953, Jains 941, Muslims 937, Hindus 933 and Sikhs 880.

But on the other hand, according to census report, Christian women tend to marry rather late and therefore the percentage of married women in the fertile age group (between 15 and 49) is only 62.15, while for the Sikhs it is 70.40, for Jains 72.09, for Buddhists 79.26, for Muslims 80.42 and for Hindus 82.35.

PRINCIPAL LANGUAGES

India has 15 officially recognised languages. This is an evolution in a land of myriad dialects. The 1961 and 1971 censuses had listed 1652 languages as mother tongues spoken in India. This evolved through the ages by the various races that came into the land from ancient times

The Indian languages of today have evolved from different language families corresponding more or less to the different ethnic elements that have come into India from the dawn of history. They may be grouped into 6 groups as under: 1. Negroid, 2. Austric, 3. Sino-Tibetan, 4. Dravidian, 5. Indo-Aryan and 6. Other Speeches.

These languages have interacted on one another through the centuries and have produced the major linguistic divisions of modern India. Among the major groups, the *Aryan* and the *Dravidian* are the dominating families. They have influenced each other and have, in turn, been influenced by the Austric and Sino-Tibetan tongues. It is easy to spot Sino-Tibetan and Austric borrowings in the Aryan and Dravidian languages and mutual borrowings of the Aryan and Dravidian groups.

Indo-Aryan, the Indic branch of the Indo-European family, came into India with the Aryans. It is the biggest of the language groups in India, accounting for about 74 per cent of the entire Indian population.

The important languages in this group are: Western Punjabi, Sindhi, Eastern Punjabi, Hindi, Bihari, Rajasthani, Gujarati, Marathi, Assamese, Bengali, Oriya, Pahari, Kashmiri and Sanskrit.

Hindi or Hindustani has produced two great literatures, ***Urdu*** and (High) ***Hindi***. Both have the same grammar and the same basic vocabulary. They differ, however, in script and higher vocabulary. ***Urdu*** uses the Perso-Arabic script. ***Hindi*** uses the Nagari script and has a preference for purely Indian words, in contradistinction to the numerous Arabic and Persian words borrowed by Urdu.

Sanskrit, the classical language of India, represents the highest achievement of the Indo-Aryan languages. Although hardly spoken now-a-days, Sanskrit has been listed a nationally accepted language in the VIII Schedule to the Constitution.

Dravidian languages form a group by themselves, and unlike the Aryan, Austric or Sino-Tibetan speeches, have no relations outside the Indian subcontinent, that is, India, Pakistan and Bangladesh. The Dravidian family is the second largest group in India, covering about 25% of the total Indian population.

The Dravidian language came into India centuries before the Indo-Aryan. It split into three branches in the Indian subcontinent—(i) The northern branch comprises ***Brahui*** spoken in Baluchistan and ***Kurukh*** and ***Malto*** spoken in Bengal and Orissa. (ii) The central branch is composed of ***Telugu*** and a number of dialects spoken in Central India— ***Kui, Khond, Holani, Konda, Gondi, Naiki, Parji, Koya*** and others. (iii) The southern branch is made up of ***Tamil, Kannada, Malayalam, Tulu, Badaga, Toda, Kota*** and ***Kodagu***.

The outstanding languages of the Dravidian group are: (i) Telugu, the State language of Andhra Pradesh, numerically the biggest of the Dravidian languages. (ii) Tamil, the State language of Tamil Nadu, apparently the oldest and purest branch of the Dravidian family. (iii) Kannada, the State language of Karnataka, another ancient Dravidian language that has developed individually. (iv) Malayalam, the State language of Kerala, the smallest and the youngest of the Dravidian family.

Of the 1652 mother tongues listed in the census, 33 were spoken by people numbering over a lakh. The following table shows the names of mother tongues and the number of speakers.

Mother Tongue	...	Speakers
Hindi	...	153,729,062
Telugu	...	44,707,797
Bengali	...	44,521,533
Marathi	...	41,723,893
Tamil	...	37,592,794
Urdu	...	28,600,428
Gujarati	...	25,656,274
Malayalam	...	21,917,430
Kannada	...	21,575,019
Oriya	...	19,726,745
Bhojpuri	...	14,340,564
Punjabi	...	13,900,202
Assamese	...	8,958,977
Chhattisgarhi	...	6,693,445
Magahi/Magadhi	...	6,638,495
Maithili	...	6,121,922
Marwari	...	4,714,094
Santali	...	3,693,558
Kashmiri	...	2,421,760
Rajasthani	...	2,093,557
Gondi	...	1,548,070
Konkani	...	1,522,684
Dogri	...	1,298,855
Gorkhali/Nepali	...	1,286,824
Garhwali	...	1,227,151
Pahari	...	1,269,651
Bhili/Bhilodi	...	1,250,312
Kurukh/Oraon	...	1,240,395
Kumauni	...	1,234,939
Sindhi	...	1,204,678
Lamani/Lambadi	...	1,203,338
Tulu	...	1,156,950
Bagri	...	1,055,607

* The figures are provisional and indicative rather than absolute.

Source: Language Handbook

India never had a common language which was intelligible to the masses everywhere in India. For many years, Sanskrit remained a common medium. But it was the language of the learned classes and not of the masses. Under the British, English became a sort of lingua franca. Here again, it was restricted to the educated few.

With independence, the question of a common language naturally came up. The constituent Assembly could not arrive at a consensus in the matter. The question was put to vote and

Hindi won on a single vote— the casting vote of the President.‡ Hindi however, was only one of the many regional languages of India. The Indian National Congress had advocated the formation of linguistic provinces. The acceptance of this policy involved the statutory recognition of all the major regional languages.

The Constitution therefore recognised Hindi in Devanagari script as the official language of the Union (Art. 343 et seq.) and the regional languages as the official languages of the States concerned (Art. 345 et seq.). English was recognised as the authoritative legislative and judicial language (Art. 348 et seq.). A schedule—the 8th Schedule—was added to the Constitution to indicate all regional languages statutorily recognised. The Schedule now contains 15 languages as follows:

(1) Assamese (2) Bengali (3) Gujarati
(4) Hindi (5) Kannada (6) Kashmiri
(7) Malayalam (8) Marathi (9) Oriya
(10) Punjabi (11) Sanskrit (12) Tamil
(13) Telugu (14) Urdu (15) Sindhi.

Of the 15 languages listed in the schedule, all except three—Sanskrit, Kashmiri and Sindhi—are official languages of the various States.

Assamese, an Indo-Aryan language, is the official language of Assam State. More than 57 per cent of the population of Assam speak Assamese.

Assamese has developed as a literary language from the 13th century.

Bengali, one of the leading Indo-Aryan languages, is the official language of West Bengal. It is spoken by 86 million people, the majority of whom are now in Bangladesh, formerly East Pakistan. Bengali emerged as a separate language around A.D. 1000. It is now one of the most advanced languages of India.

Gujarati, a member of the Indo-Aryan family, is the official language of the State of Gujarat. Gujarati started out as an independent language around A.D. 1200. It has progressed at a rapid pace and is now one of the most developed Indian languages.

Hindi, numerically the biggest of the Indo-Aryan family is the official language of the Government of India.

Among the various dialects of Hindi, the dialect chosen as official Hindi is the standard *Khariboli*, written in Devanagari script. This was originally spoken in Delhi and some western UP districts. From the literary point of view, the term Hindi covers not only the Khariboli form, but also a number of other dialects like Brajbhasha, Bundeli, Awadhi, early Marwari of Rajasthan and the Maithili and Bhojpuri of Bihar.

Being the official language of six States and the Indian Union today, Hindi is receiving high patronage. This patronage and support has encouraged the development of Hindi as a great literary language.

Kannada, the official language of the state of Karnataka, belongs to the Dravidian family. The majority of its speakers is found in Karnataka where they form more than 65 per cent of the population. Kannada, as an independent language, dates from the 9th century. It has rich literary traditions.

Kashmiri, a language of the Indo-Aryan group, is often mistaken as the state language of Jammu and Kashmir. Actually, Urdu is the State language of Jammu and Kashmir.

Kashmiri-speaking population in Jammu and Kashmir comes to about 55 per cent of the total population. Kashmiri literature goes back to A.D. 1200. It is comparatively a developed language. It is written, at present, in the Perso-Arabic script.

Malayalam, a branch of the Dravidian family, is the official language of the State of Kerala. Malayalam struck out on its own by the 10th century A.D. It is one of the most developed languages of India.

Marathi, belonging to the Indo-Aryan stock, is the official language of Maharashtra.

Though Marathi separated from the main Indo-Aryan stock at a very early date, its literary career began only in the 13th century. Since then, it has made wonderful progress. It has today a fully developed literature of the modern type.

Oriya, a branch of the Indo-Aryan family, is the official language of the State of Orissa, where Oriya-speaking population comprises some 82 per cent of the population.

Oriya is found recorded as far back as the 10th century. But its literary career began only in the 14th century.

Punjabi belongs to the Indo-Aryan family and is the official language of the State of Punjab.

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‡ Ordinarily when there is a tie between two groups in a meeting and the President is called upon to exercise his casting vote, he votes for the status quo. Here it was the other way round.

Punjabi, though a very ancient language, turned literary only in the 15th century. From the 19th century, Punjabi showed vigorous development in all branches of literature. It is written in the Gurumukhi* script.

Sanskrit, the classical language of India, is also one of the oldest languages of the world—perhaps the very oldest to be recorded. It starts with Rig Veda, which appears to have been composed around 2000 B.C. Early Sanskrit is known as Vedic Sanskrit and covers the period between 2000 and 500 B.C. Classical Sanskrit covers the period between 500 B.C. and A.D. 1000.

Sindhi is a branch of the Indo-Aryan family. It is spoken by some 7 million people, of whom 5½ million live in Sind (Pakistan), and the rest mostly in India.

Sindhi has preserved some of the archaic features of the old Indo-Aryan language. Sindhi uses the Perso-Arabic script in Pakistan. Speakers in India use the Devanagari script. Of late Sindhi has developed noteworthy literature also.

Tamil, the oldest of the Dravidian languages, is the State language of Tamil Nadu. Tamil literature goes back to centuries before the Christian era. "In originality, though not in extent, Tamil literature stands by itself". It represents certain new literary types which are not found in Sanskrit or other Aryan languages. The language is spoken by 30 million or more and judging by its modern publications, it is advancing at a fantastic pace.

Telugu, numerically the biggest of the Dravidian languages, is the State language of Andhra Pradesh. Next to Hindi, it is the biggest linguistic unit in India. Telugu is found recorded from the 7th century A.D. But it was only in the 11th century that it broke out into a literary language.

Urdu, the State language of Jammu and Kashmir, is spoken by more than 28 million people in India (1981 census).

The name Urdu is derived from 'Zaban-e-Urdu-Muala' which means the language of the exalted camp or court. The exalted camp or court here meant the camp or court of the ruling Sultans of Delhi.

Urdu and Hindi have proceeded from the same source, that is, from the Khariboli speech of Delhi and surrounding areas. The Khariboli was a spoken language which prevailed around Delhi, since the 13th century.

In the 19th century, when the Delhi Sultanate disappeared and the British became the rulers, Sir Sayyed Ahmed Khan (1817—1898) started a revival of Urdu, as the language of the Muslims in India. Modern Urdu was thus born.

Urdu has produced an extensive literature. Muslim speakers of Urdu use the Perso-Arabic script while Hindus use the Devanagari script. Urdu is also written in Roman characters.

Art. 343 of the Constitution provides that for a period of 15 years from the commencement of the Constitution the English language shall continue to be used for all official purposes of the Union. It was expected that after the expiry of the stipulated period (that is after 1965) Hindi would displace English as the official language of the Union.

Subsequent developments have turned the current in favour of continuing English as an additional official language, no definite date being fixed for its elimination and replacement by Hindi.

As matters stand, the languages listed in the Constitution remain the official languages in the respective States, while Hindi and English continue to be used for inter-State correspondence and for all-India use generally.

INDIAN LITERATURE

Indian Literature is one though written in many languages—this has been the slogan of the Sahitya Akademi ever since its inception. There are 15 officially recognised languages in India and each has produced a literature of great vitality and richness. Though distinctive in parts, all stand for a homogenous culture that is the essence of the great Indian Literature.

The Indian constitution has officially recognised 15 languages after taking into consideration their numerical, commercial, political and cultural importance. But the number of mother-tongues as per 1961 Census is 1652.

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* 'Gurumukhi' literally means 'from the face of the guru'. It is the name given to the script devised by the Sikh guru, Guru Angad, in the 16th century. The Gurumukhi is based on the old Sharda script, which is related to the Nagari script.

This bewildering figure has been arrived at, taking into account even dialects spoken only by five persons. The 1971 census gives a more realistic figure of 700, having taken into account the dialects spoken by 1000 people and above.

These languages belong to four major speech families — the Aryan, the Dravidian, the Sino-Tibetan (or Mongolian) and the Austric. But the 15 major languages come under the Indo-Aryan (11) and the Dravidian (4). They are also literary languages. The Sahitya Akademi (the Natioanl Academy of Letters) has approved not only these 15 languages, but also English and six more Indian languages (Dogri, Konkani, Manipuri, Maithili, Nepali and Rajasthani) for its activities.

The addition of six languages was done after a good deal of deliberation by expert committees appointed by the Akademi since 1960. Thus we can say that Indian literature is produced in at least 22 languages. In other words, there are 22 Indian Literatures recognised by the Sahitya Akademi.

We have 22 developed languages in India, which produce 22 literatures and these have a substantial common denomination justifying the expression 'the Indian Literature' with its intrinsic variety.

Since its inception in 1954, the Sahitya Akademi has been propagating the idea of cultural unity by using the slogan "Indian Literature is one though written in many languages". This aphoristic statement is honestly questioned by thinkers who point out that literature is language-based and hence it is intrinsically linked with the language in which it is written.

The literature of a particular language has its own special form, symbols and nuances. Therefore it is more logical to say that there are as many literatures in India as there are languages which have flowered into literature. This approach has its own relevance or force. But there is another side to the question. When we survey the various literatures of India, it is possible to recognise some common characteristics which reveal their Indianness, some threads which hold them together despite their distinctive flavour or diverse association.

The like-minded response of our creative writers in the many languages to common problems and similar experiences is unmistakably clear. Therefore the use 'Indian Literature' in the singular is as acceptable as its use with the plural. As a matter of fact, Western Orientalists and Indologists as also Indian scholars and historians have used the term in the singular and also in the plural as evidenced from the titles of books written by them and no one has questioned the usages. But it is significant that no one uses the term 'The Indian Language' (in the singular) as there is no language which can make such a claim.

English has been used by Indians for literary expression in the last 200 years. Thus we have 22 developed languages in India, which produce 22 literatures and these have a substantial common denominator justifying the expression 'the Indian literature'.

These 22 languages are not equal in their development and national or state support. No doubt all the regional languages have received a fillip after the attainment of independence. English, though foreign in origin, still plays an important role as the associate official language and the most effective link language both within India and outside India. Indians have made their own contribution to the English language in creative writing and in intellectual pursuits. That is why the Sahitya Akademi has approved it for its programmes.

Even the 15 scheduled languages which the Akademi had originally approved differ in their background, historical development and functional relevance. Sanskrit language and its literature has a special place in our civilization. It is the oldest classical language and had functioned as the most powerful formative agency and integrating force from the very beginning of Indian history.

Spoken Sanskrit (by whatever name it has been called) is the fountain from which the languages of Aryan India had originally sprung; the principal portion of their vocabulary and their inflexional system being derived from this source. Even the Dravidian languages which have a considerably different morphological system are indebted to Sanskrit in the realms of vocabulary and phonology with the partial exception of Tamil. Acually, there is no important language or literature in India which has not been influenced and enriched by Sanskrit and its great literature. Traditional Indian culture cannot be properly understood without the help of Sanskrit. This has been well recognised by orientalists but the complementary role played by ancient Tamil works representing the Dravidian stock has not been appreciated as much as it should have been.

Next to Sanskrit comes Tamil with reference to the antiquity of literature. Except Tamil in the South and Urdu in the North, almost all the modern Indian languages emerged more or less within the same period of Indian history. Urdu has only a heritage of about five centuries.

As regards state patronage there is considerable variation. Hindi has a pre-eminent place in the national set-up as the official language of the Union of India and that of six states. Kashmiri and Sindhi have no state to support them as official languages. Sanskrit remains apart as a classical language, the other languages each has a state to support and foster: Assamese (Assam), Bengali (West Bengal), Gujarati (Gujarat), Kannada (Karnataka), Malayalam (Kerala), Marathi (Maharashtra), Oriya (Orissa), Punjabi (Punjab), Tamil (Tamil Nadu), Telugu (Andhra Pradesh) and Urdu (Jammu & Kashmir). Brief reviews of the twenty-two literatures are given below:

For a period of about 40 years, Bengali language dominated in Assam especially in administration and education. But that came to an end with the renaissance of Assamese.

ASSAMESE

Though the antiquity of the Assamese language can be traced back to the seventh century A.D. it sprouted literary forms only by the 13th century. Rudra Kandali's translation of 'Dronaparva (of the *Mahabharata*) and Madhava Kandali's rendering of the *Ramayana* are two works of classical eminence of the early period. The new Vaishnavite movement in the 15th century AD gave an impetus to the vernacular literature. Sankara Dev (1449-1568), during his long life, popularised the movement by his great poetic compositions, dramas and lyrics.

The poetical compositions from the 16th to the 19th centuries may be classified into six categories: (i) translation from the epics and puranas, (ii) Kavyas based on episodes, and stories from the epics and puranas, (iii) lyrics, (iv) secular and utilitarian Kavyas, (v) biographical works and (vi) devotional anthologies and compendia. Traditional poetry was composed keeping an assembly of listeners in view as literacy was confined to the privileged classes.

The great names that should be remembered are Bhattadev (1558-1638) who popularised Assamese prose, Damodara Dev, who wrote important biographies, and Purushottam Thakur who wrote grammatical works. The Buranjis constitute a glorious chapter in Assamese literature. Actually modern Assamese prose emerges from Buranjis, though the European missionary also has an important role in the shaping of modern prose. In the 17th century a prose version of the *Ramayana* was written. Literature also broke out into secular channels.

The last three quarters of the 18th century and the first half of the 19th century were on the whole a barren period. Then with the influences of the west, the modern period commences. For a period of about 40 years (1836-72) Bengali language dominated in Assam especially in administration and education; but that came to an end especially when the Christian Missionaries started their work of compiling dictionaries and writing grammars of Assamese and translating the Bible in simple prose. The translation of the whole Bible into Assamese by the missionaries and its publication in 1813 was an important event.

The leaders of renaissance in Assamese literature are Chandrakumar Agarwalla (1858-1938), Lakshminath Bezbarua (1867-1938), and Hemachandra Goswami (1872-1928). The monthly *Jonaki* which ushered in the romantic movement was founded by them. The leading novelists of the 19th century were

Padmanath Gohain Barua and Rajanikantha Bardoloi. Both of them have written quite a few historical novels. In the field of social novel, the important names are Dandinath Kalita Daiba Chandra Talukdar and Bina Barua. In the post-Independent period the more important fiction writers are Syed Abdul Malik (B. 1919), Jogesh Das (B. 1927) and Birendra Kumar Bhattacharya (B. 1924), the last one has annexed the Jnanpith Award (1979). Assamese is fairly rich in short story, personal essay, biography and other forms of modern prose. Both in poetry and prose, a Marxian emphasis is evidenced in the forties and fifties of the present century. Western literature has considerably influenced contemporary writing.

BENGALI

Historians of Bengali literature find early forms of Bengali writing between the 8th and 12th century AD. Among these the Natha literature of the 12th century is more important from the literary point of view. This form of literature has emerged from the Buddhist Sahajiya cult. The Vaishnava cult also gained ground. From the middle of the 14th century, Radhakrishna lyrics became very popular and Chandidas was the great spokesman of this form of writing. He has composed about a thousand poems.

Translations or rather adaptations of the Ramayana became very popular in the 15th century. The most well-known is the *Ramayana* by Krttivas Ojha. Critics consider it an adaptation of one particular book. *Ramayana* of Krttivas is revered as much as *Ramacharitamanasa* of Tulasidas in North India.

The types of literature which became popular after the Bengali rendering of the classical Sanskrit works, is called *Mangala-Kavyas*. They are long narrative poems extolling the struggle of a god or goddess to establish himself or herself against certain rivals. There are three recognised varieties of *Mangal Kavyas*: (i) *Manasamangal* (ii) *Chandimangal* and (iii) *Dharmamangal*, each representing a separate godhead.

The advent of Sri Chaitanya (1486-1533) was an epoch-making event in Bengali literature which spread to neighbouring languages as well. The life and teachings of Chaitanya made Vaishnavism a living faith. Many of his disciples produced literature of great power and the influence continued for over two centuries. The literature comprised of two classes, lyric poetry and biographical works. The Radhakrishna love songs were so popular that even Muslim poets composed some poems on the same theme.

The 18th century was, comparatively speaking, a period of decadence in Bengali poetry. The modern period begins practically with the 19th century. Bengali prose evolved and developed in such a manner that it became a suitable medium for literary expression. For this development the European Missionaries and the English educated Bengalis were to a great extent responsible. The missionaries produced grammars and dictionaries and they translated the Bible into Bengali prose.

The establishment of the Fort William College at Calcutta in 1800 was an epoch-making event. The contribution of William Carey, a Serampore missionary was so substantial and significant to Bengali and other Indian languages that it will never be forgotten. Carey wrote a Bengali grammar, compiled an English-Bengali dictionary and organized the translation of the Bible in Bengali.

Translation of English literary works gave a fillip to Bengali prose writing. At the same time, translation from Sanskrit was not disregarded. While poetry gained a new dimension, new literary forms like the novel, the short story, the personal essay and biography took shape in the language. The most outstanding poet of mid-19th century Madhusudan Dutt composed the classic *Meghanath Badh Kavya*, the first epic poem in Bengali in the western sense. He was inspired by Homer, Virgil and Dante. He also wrote some plays which differ from the traditional *gatra* type.

Bankim Chandra wrote his first romantic

Quite a number of Bengali writers are known beyond the borders of Bengal. Several movements in literature sprouted in Bengali first and then spread over to other languages in India.

novel *Durgesh Nandini* in 1865. This gave a thrill to the readers of Bengali and soon translations appeared in sister languages. Bankim wrote more novels like *Anandmatha, Rajsimha, Visha Vriksha* etc. that he was hailed as a pioneer novelist in India. Sarat Chandra followed him with several novels of classical dignity and charm. His *Nishkriti* (Release), *Bindur Cele* (Bindu's Ward) and *Srikanta* are particularly well-known. In the third quarter of the 19th century Bengali literature was brimming with activity in all the genres of literature.

But it reached the summit of its glory through the life-long service of Rabindranath Tagore. It was actually a spiritual endeavour for the bard. Thousands of lyrics, poems and songs, about a dozen novels, three dozen plays, volumes of short stories and a mass of prose literature flowed from his pen. His own translation of *Gitanjali* in English brought him international fame when he was awarded the Nobel Prize in 1913. His *Gora* is considered the only epic novel in our literature.

The post-Tagore period of Bengali literature is also rich. Here we find novelists like Tarashankar Banerji, Manik Banerji and Bibhuti Bhushan Banerji in the field of fiction, Jibananda Das, Nazrul Islam, Sudhindra Nath Datta, Buddha Devra Bose, Premenda Mitra and Bishnu De in poetry, Dinabandhu Mitra, G. C. Ghose and Dwijendralal Roy in the field of Drama and a host of others who have an established reputation in Bengali. Quite a few of them are known beyond the borders of Bengal. It may also be stated that several movements in literature sprouted in Bengali first and then spread over to other languages in India.

GUJARATI

Gujarati language evolved from one of the dialects of the standard Gurjara Apabhramsa and got a distinctive form by the 12th century. Jain influence is quite strong especially in the early periods. The history of Gujarati literature falls into four broad periods: (1) 1250-1456 (2) 1456-1650, (3) 1650-1825; and (4) 1825-1975.

By about 1250 Gujarat became an independent political unit with considerable achievement in art and literature. Sanskrit was cultivated and libraries were set up in the monasteries. Saivism became strong. Heroic romance, historical chronicle and the romantic tale are the principal narrative forms of this early period. *Rasa,* originally a folk-dance was converted into melodious dramatic poetry by Jain authors. *Fagu,* a shorter and more lyrical poem also became popular. Jina Padma, Raja Sekhara and Jayasekhara (all of the 14th century) were important poets who popularised the *fagu.* Romantic tales in verse also were in vogue. The Jain scholars took to writing in prose which was elegant and simple. *Prithvichandra* (1422) by Manikya is a reputed work of poetical prose.

In the second period the language breaks away from the Rajasthani idiom. Hinduism takes the place of Jainism as the main source of literary inspiration. The epics and puranas flow into Gujarati. The great poets of the period are Narasimha and Mirabai; the latter is being claimed by languages like Hindi and Rajasthani. Narasimha Mehta (1414-1480), though not the first Gujarati poet, is considered to be the father of Gujarati poetry like Ezhuthachan in Malayalam. His Govinda-Gamana and Sudama Charitra are very well known.

Mirabai who wrote in Gujarati is the most celebrated poetess of India. Her bridal devotion to her Lord Krishna has a ring of purity and is a fine example of the sublimation of the sex element.

Mirabai (1499-1547) is the most celebrated woman poetess of India. Her bridal devotion to her Lord Krishna has a ring of purity and is a fine example of the sublimation of the sex element. After them comes Bhalana (1434-1514), the great scholar and artist who has adapted *Kadambari, Nalakhyana* and *Ramabalacharita.* Bana's prose work *Kadambari* has been rendered in a versified form.

Here Bhalana shows the art of pruning the luxuriance of the original and adding imageries of local significance. Nakara (1500-1575) and Vishnudasa (1564-1632) enriched the Akhyana literature. The *Ramayana,* the *Mahabharata* and the *Puranas* were brought into Gujarati in an assimilable form by them.

Akho (1591-1656) of Ahmedabad was the champion of Vedantic poetry in Gujarati.

Thus we pass on to the third period when Akbar formed the province of Gujarat separating it from Marvad. Life was dull from about 1700 until the British came to the scene. Premanand (1636-1734) is the finest poet of this period. He brought the *Akhyana* technique to perfection. The 16th century was rich in romantic tales which were composed by Jain and non-Jain poets alike. We thus come to the modern period where the impact of the west is clearly seen in the literary productions. Dalapatram (1820-1898) and Narmadasankar (1833-86) were the leaders of this new age. They were scholars and classical poets. Nandasankar's *Karana Ghelo* (1866) is the first novel in Gujarati. But the most celebrated novel *Saraswati Chandra* came from the pen of Govardhan Ram Tripathi (1855-1907). It is considered to be one of the great classics of modern India.

In the field of fiction we have the stalwart, K. M. Munshi. One should not forget the valuable contribution of Gandhiji who influenced Gujarati writers to write simple and direct prose as also Kaka Sahib Kalelkar who wrote in Gujarati, Hindi and Marathi with equal ease.

Coming to the contemporary period Gujarati flourished in all genres of literature, the most outstanding poets are Sundaram and Umasankar Joshi, novelists Pannalal Patel, (who won the Jnanpith Award of 1985) and Dhansukhlal Mehta. Among the playwrights, the names of C. C. Mehta, Umar Wadia and Shivkumar Joshi may be mentioned.

HINDI

The Hindi language comprises of a number of dialects of which those used for literary composition are Khariboli, Rajasthani, Maithili, Brajbhasha and Awadhi. Khariboli became the chief literary medium only by the 19th century. The early period of Hindi literature which is called *Adikala* is accepted as the period upto mid-14th century.

The main groups of trend-setters in this period were: (i) the Siddhas, (ii) the Jain Poets, (iii) the Nathapanthis and (iv) the heroic poets. The Siddhas belonged to the later Buddhistic cult called *Vajrayana*. The *Nathapanthis* adhered to a cult in which *Hatha yoga* was practised. The works of heroic poets are generally known as *Rasau* poems (derived from *rasa*, a style of verse-biography which was also sung).

The second period which consists of the mid-14th to mid-17th century is dominated by devotional poetry (*Bhakti Kavyas*). The Hindi *bhakti* poetry consists of two streams: (i) *Nirguna* — the poets who believed in a formless God or abstract name: (ii) *Saguna* — the poets who believed in singing and writing about a God with attributes (human incarnation like Rama in particular).

Kabir (1398-1518) is the most important poet in the Nirguna school. He preached the universal religion of man above and beyond Hindu or Muslim orthodoxy and composed a large number of songs and poems. Guru Nanak (1469-1538), the founder of Sikhism, is also accepted as an outstanding poet of this school.

Bharatendu Harischandra was the pioneer who ushered in the modern period of Hindi literature. He deliberately made Khariboli the medium for his prose and dramatic writings.

The *Saguna* stream is related to Vaishnava poets who belong to two categories, those worshipping Krishna and those worshipping Rama. Surdasa whose poems have been compiled under the title *Surasagara* was a great poet of Krishna poetry. Vidyapati claimed by Bengali and Maithili was a versatile composer of Hindi poems also.

The great champion of Rama poetry is Tulasidas (1543-1623) whose *Ramacharitamanasa* is considered an immortal classic by all lovers of Hindi poetry. He has command over all the important styles of composition — narrative, epic style, lyrical and dialectic. He has given a human character to Rama, portraying him as an ideal son, husband, brother, king and so on. Tulasidas considered Siva and Vishnu as two aspects of the same supreme being and this brought about unity among the Hindus.

The third period is spoken of as the *Ritikavyakal*. It is also referred to as the

Ritisrngara Kavya. Though literally the word *riti* means 'a way of writing poetry' in Hindi it refers to a special form in which the erotic element is preponderant. The *riti* can either be explicit or implicit. Hindi is very rich in both these categories of poetry. During the same period Hindi had also a good collection of Devotional poetry and Historic poetry. In the *Bhakti* period there were many epics and long narrative poems composed in the dialects of Hindi (Awadhi, Braj bhasha, etc.).

The modern period of Hindi literature commences with the second half of the 19th century. Bharatendu Harischandra (1850-84) was the pioneer who ushered in the modern era. He deliberately made Khariboli the medium for his prose and dramatic writings. But, for poetic composition he used Brajbhasha.

Other important writers of this formative period are Maithili Saran Gupta (1886-1964), R. N. Tripathi (1889-1962) and Gopala Sarana Sinha (1891-1960). Maithili Saran revived the epic tradition. Far-reaching events in the national and international spheres had their effect on Hindi literature. The romantic upsurge spoken of as Chaya vada is an important element of the period.

Kannada has a long history of literature next only to Sanskrit and Tamil. Though Dravidian in its origin, Kannada has been considerably influenced and thereby enriched by Sanskrit.

Jayashankar Prasad, Surya Kant Tripathi, 'Nirala' and Sumitra Nandan Pant are the leading luminaries of the movement. Kamayani by Jayashankar published in 1936 is hailed as a magnum opus. It is the psychobiological journey of a man through time and space.

In the second phase of the modern period, which is referred to as the *Dwivedi yug*, the leading figure obviously was Mahavir Prasad Dwivedi. Poetry, Drama, Novel, Short story and the Essay flourished on account of western impact. Drama in Hindi has a long history from the 14th century. But the prose drama developed only towards the close of the 19th century.

Bharatendu and Jayashankar Prasad have written quite a few plays. In the field of fiction, the great stalwart no doubt is Premchand. His novel *Godan* has been translated into many languages, Indian and foreign. Other important novelists of the contemporary period are Jainendra Kumar, Phaneswar Nath Renu, (*Maila Anchal*) and Satchidananda Vatsyayan.

KANNADA

Kannada has a long history of literature next only to Sanskrit and Tamil. Though Dravidian in its origin, Kannada has been considerably influenced by Sanskrit and even the early literature bears witness to this phenomenon. According to some scholars the language flowered into literature as early as the 5th century AD. Nirpatunga of the late 9th century refers in his work *Kavirajamarga* to a number of predecessors who wrote prose and verse. There were also important works on grammar and rhetoric. Though Sanskrit had a hold on the people as a religious and fashionable language, Nripatunga voiced the glories of his mother tongue.

Works based on or inspired by Sanskrit epics such as the *Mahabharata* and the *Ramayana* formed the earliest literature in Kannada. The three gems of early Kannada poetry, Pampa, Ranna and Ponna (all born in the 10th century), rendered the epics in Kannada. The early writers were also promoters of the Champu style and some of them have written about Jaina Tirthamkaras.

Kasiraja's *Sabdamani darpana* (C 1260 AD) is the first standard grammar of the Kannada language. Nagavarma II has written three works on language, literature and grammar, viz. *Kavyalokana, Bhasha bhushana* (in Sanskrit) and *Vastukosha*, a Sanskrit-Kannada glossary.

A great change took place in Kannada literaure when Basaveswara (12th century) introduced the *Vachana* style of writing which caused a social revolution. *Vachanas*, or sayings, are simple in style, prose in construction, with a sort of ryhme, but pithy and proverb-like. The imagery belongs to the daily life of the ordinary man. This was imitated by other writers not only in Kannada, but in Telugu as well. Dignity of labour and equality

Nayantara: Accolades Rush In

Nayantara Sahgal, 60, is in the forefront of Indo-Anglian writers: After writing for more than 30 years, producing two autobiographical books, five novels and one political treatise on Indira Gandhi, her sixth and seventh novels have won her accolades one after another—first the Sinclair Award, then the Sahitya Akademi Award and lastly in 1987 the Commonwealth Writers' Prize (Asian section).

Nayantara achieved a quiet success with her novels, although there were many who said she was a better political commentator than a writer of fiction. Then, right out of the blue, came the Sinclair Award, for the best unpublished full-length novel which in the opinion of the judges is not only of great literary merit, but also of major social and political significance. Her book Rich Like Us *lying unpublished with her agent in England, went on to win the £ 5,000 award, and later the Sahitya Akademi Award as well.*

Rich Like Us *was written in America on a Woodrow Wilson fellowship. Although she liked the book and thought it the best thing she had ever done, she could not find a publisher for it. Being a disciplined writer, she started another novel,* Plans For Departure, *which was immediately accepted for publication.*

She saw a cutting about the Sinclair Award, while still in the U.S. She contacted her agent in England who had the manuscript typed in the proper format and submitted it. It went on to win the prestigious award and was published quickly, at the same time as her other book Plans For Departure, *so that she was in the enviable position of having two new books out at the same time.*

Nayantara is a disciplined, dedicated and extremely talented writer.

The milieu of her books is always middle class, a fact that baffles most western critics who, according to the New York Review of Books, *"do not think of Indians as being in any way middle class" picturing them only as teeming, starving millions, rotting under the hot sun.*

Each of her books has subtlety, humour and irony, and appeals more to the head than the heart. Plans For Departure *is very much a novel of ideals, exploring the impact of British rule in India and creating characters who are both complex and believable. Set in an isolated hill station, her sensuous writing evokes the scenes and landscapes of India, and comments on the British who "stayed on" and the missionaries who are convinced that their form of salvation is right for everyone.*

The central character is Anna Hansen, an assertive Danish woman who becomes involved in the goings-on in Himapur. In a typically Indian statement, the shopkeeper Madhav says — "Past, present and future are not divided; seen from outside the mind they are one".

Another book has since been finished and is already with her agent. He feels it is the best thing she has ever done, so perhaps there are newer and greater awards in store for this writer, who at 60 is able to say, "I've only just begun to write" of all members of the society were the cardinal points of the Basavesvara movement.

Other important poets of the era are Harihara, Raghavanka, Rudra Bhatta and Janna, Kumara Vyasa (15th century) comes a little later. His epic *Bharatakathamanjari* is very well known. Actually Pampa and Kumara Vyasa are the giant genius figures in Kannada literature. We may also mention in passing the names of three more great poets. Lakshmisa (C. 1550), Sarvajna (C. 1600) and Sankaradeva (C. 1655). Jains, Virasaivas and Brahmanas have produced works on their respective religions and on various secular themes.

After a less fertile interregnum, we come to the period of Renaissance and the Independence era. Two trends are witnessed during this period almost simultaneously, the absorption of western ideas and a patriotic rediscovery of the past. Historians divide the modern period as follows: (i) 1850-1920: the period of cultural awakening: (ii) 1920-50: the period of great political struggle and also a reaction to it in the form of social realism (iii) 1950-70: the period of disillusionment and of experimentation, (iv) 1970 onwards: the transitional period of political uncertainties.

The great writers of cultural awakening are B. M. Srikantaiah (1884-1946) and M. Govinda Pai (1883-1963). Srikantaiah's *Inglis Gitagalu* marks a turning point in verse composition. The poets of stature who followed are K. V Puttappa (b. 1904) whose *Ramayanadarsanam* has been acknowledged as a modern classic and D. R. Bendre (1896), a great lyricist, both of them have won the Jnanpith Award.

Two novelists who won the same award are Masti Venkatesh Iyengar (1891-1986) and K. Sivaram Karanth (b. 1902). Masti is considered the father of Kannada short story. Among the modern dramatists the tall figures are Adya Rangacharya and T. P. Kailasam. One notable feature as far as modern Kannada literature is concerned is that there are quite a few writers who have made a mark in more than one field: A N. Krishna Rao (Poet and novelist), V. K. Gokak (poet and novelist), Gopalakrishan Adiga (poet and essayist) and R. S. Mugali (poet and historian). Kannada is flourishing in almost all branches of literature.

KASHMIRI

Kashmiri separated from the parental *Apabhramsa* stock around the 10th century AD. By oral tradition the language has transmitted a good deal of folk items. Sanskrit flourished along with the prakrit of the area. Some historians consider the *Brihatkatha* in Sanskrit as an adaptation made from the mother tongue of Kashmiris.

The beginnings of Kashmiri poetry is an extension of the Saiva texts in Sanskrit like *Tantrasara* (11th century) by Abhinava Gupta. The Saiva siddhas wanted to propagate their views and beliefs. During the 14th century two different religious traditions came face to face in Kashmir. By that time *Saiva darsana* had assimilated Buddhist as well as Vaishnavistic strands in it.

The tradition of Islamic faith from central Asian areas also came to Kashmir by that time. this blended religio-cultural heritage. Persian continued as the official language for over 600 years. Consequently Kashmiri was cultivated only as the medium of low-brow expression. Later in point of time, Urdu poetry exerted its own influence on Kashmiri.

Kashmiri has a fairly long tradition of poetic compositions but its prose is very recent. Kashmiri script is such that printing is very difficult and this has to some extent retarded the progress of prose.

The following technical terms, for literary genres in Kashmiri will indicate the nature of influence on Kashmiri verse: 1. *Vak* (from Sanskrit) is a metrical utterance with a spiritual content. 2. *S'ruk* from Sanskrit *sloka* is akin to *vak* applied to the Sufistic context 3. *Paband* (from Sanskrit *Prabandha*) is a cantoed composition. 4. *Vatsun* (from Sanskrit vacana) is song with a refrain.

There are five varieties of *Vatsun*. *Masnavi* taken from the Persian tradition is a couplet form with rhyme. It is either a praise of God or a panegyric addressed to a royal patron. In addition we have *Lila, Pad, Dastan, Marsi* and Ghazal showing the many varieties of verse composition. This fertile period from 1200 to 1900 AD is usually divided into 5 phases.

Nunda Rishi, the great poet was a product of

In the beginning of the modern period the pioneering poet was Mahjur (1885-1952). His ghazals are well known. Zinda Kaul Mastergi (1886-1966) is another outstanding poet of modern Kashmir. The influence of the west is clear in later periods. This is particularly so when drama and prose literature are taken up for consideration. Kashmiri has a fairly *long* tradition of poetic compositions, but its prose is very recent.

Urdu is the official language of the state of Jammu & Kashmir and the educated people cultivated competence in that language. Kashmiri fiction originated with the progressive movement of the Forties. And important writers, like Akhtar Mohi-Ud Din (b. 1928), Mohammed Amin Kamil (b. 1924) and Ali Mohammad Lone (b. 1926) actually switched over from Urdu to Kashmiri. The script used by Kashmiri is such that printing is made difficult. This has to some extent retarded the progress of prose-writings and its popularisation.

The missionaries tried to popularise colloquial idiom in Malayalam. Poetry got a new dimension (lyrics, odes, etc.) and prose got new literary geners. Western influence reflects in creative writing.

MALAYALAM

The early period of Malayalam literature consists of a tripe stream. (i) The Pacha-Malayalam stream, by which we mean literary expression in pure Malayalam without any admixture, (ii) The Tamil stream and (iii) the Sanskrit stream. The first steam consists of ballads and folk-songs, which are difficult to date. Songs connected with religious rites such as *Bhadrakali pattu,* Thiyattupattu, Sastrakali Thottampattu and later in point of time, 'Margamkalippattu' are important varieties. Then we have festival songs like *Onappattu* and *Krishipattu* and ballads of North Malabar and South Malabar.

In the Tamil stream (pattu school) the most outstanding work is *Ramacharitam* (12th century AD) composed in a language which is a mixture of Tamil and Malayalam. The mixing happens in the area of grammar as well. The author is one Chiraman and only *Yuddhakanda* has been taken up by the poet. After this magnificent long poem, we have the works of Niranam poets, *Kannasa Ramayanam, Bhagavad Gita* and *Bharatamala.* As compared to *Ramacharitam* the Tamil influence in these works is much less. The Niranam poets (Kannassan group) were great scholars and literary luminaries.

Sanskrit language and literature had a predominant influence on the native language of Kerala. It has resulted in a peculiar variety of literary dialect called *Manipravalam* and hence this stream is also referred to by this name. *Lilatilakam* (14th century) is the earliest book dealing with certain aspects of Malayalam grammar devoting most of its space to the grammar and rhetoric of Manipravala compositions. Such compositions come under two main literary forms, *Sandesha Kavyas* and *Champus.*

Among the many *Sandesha* (message) poems, the most outstanding is *Unnunili Sandesam* (14th cent.) whose authorship is unknown. The most well known early Champus are *Unniyaticharitam* and *Unnichirutevi charitam.* The three streams were influencing each other and by about the 15th century, we have a great poem titled *Krishnagatha* composed in a blended dignified style, neither too high-brow nor too low-brow. Cherussery Nambudiri is the author of this long poem on Krishna. Throughout the whole range of Malayalam literature there is no personality who could come anywhere near Ezhuthachan (16th Century) in the grandeur of poetic quality. His *Adhyatma Ramayanam, Bharatam* and *Bhagawatam* are the greatest classics in the Malayalam language. *Kilippattu* is the name given to the form of verse he has made popular. The *Pattu* (song) of the *Kili* means parrot song and in this literary form Ezhuthachan has made use of a style which has set the standard for all time. His Ramayana and *Mahabharata* are great *Bhakti* poems in the language. Till about the 18th cent. *Kilippattu, Champu* and *Sandesha* kavya compositions had been produced by many a poet in Kerala.

Coming to the 18th cent. we have *Attakkatha* and *Thullal* compositions which have enriched Malayalam verse in a significant way.

Attakkatha is the literature form used for the well known *Kathakali* performance. *Ramanattam* by Kottarakkara Thampuran is the first full-fledged *Attakkatha*. The great masters of this literary form are Kottayathu Thampuran (*Baka vadham, Kalakeyavadham* etc.) Unnayai Variyer (*Nalacharitam —four days*) and Erayimman Thampi (*Uttaraswayamvaram, Dakshavagam* etc.)

Thullal is a more popular art-form and it has a considerable amount of good literature. This branch of literature is associated with the name of Kunchan Nambiyar who is its unrivalled master. He has about 45 *Thullal* pieces to his credit. The puranic themes he selects for his compositions are but pegs to hang his social criticism and his poetry brims with humour and satire. *Thullal* has great mass appeal.

Malayalam can claim to have a fairly long history of prose writings. *Arthasastr* has been adapted into Malayalam prose around the 13th cent. Then we have *Attaprakaram, Kramadeepika* and *Dulavakyam* assigned to the period between 14th and 17th cent. *Varthamana pusthakam* by Parammakal Thoma Kathanar is a travelogue written about a journey to Rome (1776-86) in simple Malayalam.

Marathi has a flourishing contemporary literature in every branch of verse and prose. Some of its plays have earned a reputation beyond the borders of Maharashtra during the last quarter of the century.

By mid-19th cent. we have missionaries like Bailey and Gundert compiling dictionaries, writing grammars and arranging translation of the Bible in Malayalam. The missionaries tried to popularise the colloquial idiom. Towards the end of the century, western impact finds expression in creative writing. While poetry gets a new dimension (lyrics, odes, etc.) new literary genres established in prose.

Poets and scholars like Kerala Varma and Rajaraja Varma paved the way for an abiding renaissance in literature. Chandu Menon's social novels (*Indulekha* and *Sarada*) and C. V. Raman Pillai's historical novels (*Marthanda Varma, Ramaraja Bahadur* and *Dharmaraja*) are considered outstanding classics in the language. The contribution of the great-trio Kumaran Asan, Vallathol Narayana Menon and Ulloor S. Parameswara Iyyer — have enriched Malayalam literature with their writings in verse and prose.

Coming down to modern times we have poets like G. Sankara Kurup, who won the First Jnanapith Award and Changampuzha, Vailoppilli Sreedhara Menon, N. V. Krishna Warrier, O. N. V. Kurup, Vayalar, etc. fiction writers like Kesavadev, Thakazhi (who also has won the Jnanapith Award), Muhammed Basheer, Ponkunnam Varki, S. K. Pottekkad, P. C. Kuttikrishnan, Karoor, Kovoor and M. T. Vasudevan Nair; Playwrights like E. V. Krishna Pillai, N. Krishna Pillai, Thoppil Bhasi & T. N. Gopinathan Nair and critics like P. K. Narayana Pillai, Kuttikrishna Marar, M. P. Paul and Mundassery and lots of others in all branches of literature too numerous to mention.

MARATHI

Marathi language was derived from Maharashtri *Apabhramsa*. The history of Marathi literature can be divided into six periods.

1. The Yadav period 1189-1320 A.D. 2. The Bahamani period 1320-1600 A.D. 3. The Maratha period 1600-1700 A.D. 4. The Peshwa period 1700-1850 A.D. 5. The British period 1850-1947 A.D. 6. Contemporary period 1947.

During the first two priods, Marathi literary genius occupied itself chiefly with religious and philosophical exposition chiefly in verse. *Viveka Sindhu* (Sea of Philosophy) by Mukundaraj, a yogi of 'Natha Pantha' is accepted as the first major work. The origin of Marathi prose is also to be found in the Yadav period. The credit for it goes to another religious sect called the 'Mahanubhavas'. They eschewed Sanskrit deliberately and made Marathi a vehicle for the propagation of religion and culture. However, the influence of Sanskrit is seen in the acceptance of literary forms and theories.

An extremely effective revolt against Hindu orthodoxy came from Jnanadeva. *Jnanesvar* (a commentary on *Bhagawat Gita* and *Amritanubhava* (A Nectar of Experience) are his two masterpieces. Saintly singers sprang up in all castes and communities. Namdeva, who was a tailor became a disciple of Jnanadev

(Jnaneswar). He became a great poet propagating a devotional cult called 'Varkari Panth'. Gardeners, potters, goldsmiths and such other people extolled 'Bhagawat Dharma' in acceptable verse.

In the Bahamani period, conversion to Islam took place on a mass scale. The flame of Hindu religion, however, was kept up with considerable zeal. The works of Ekkanath are to be sepcially remembered in this connection. He was a great saint and social reformer. His *Bhavartha Ramayana* brought the message of *Bhagawat cult* to the people with great power. Jainism too enriched Marathi in this age.

When we pass on to the third period, the most notable aspect is the contribution of Christian missionaries in Goa. Father Sephens (1549-1619) who came to India, studied Marathi language so well that he could compose charming verses in it. His *Krista purana* is considered a classic on the model of *Jnanesvara*.

The dawn of 17th century was most eventful in the political and literary history of Maharastra. Tukaram (1608-49), the greatest saint poet of the language, contributed in such measure to devotional poetry that he is remembered with great veneration even today. A *Sudra* by birth, he wrote 3000 *abhangas*. Their appeal is timeless. He was followed by Ramadas.

Coming to the Peshwa period, Krishnadayarnava and Shridhar are the leading poets. New literary forms were successfully experimented with during the period and classical styles were revived, especially the *Mahakavya* and *Prabandha* forms. A period of transition followed in the first half of the 19th century. In 1818 Maharashtra lost its freedom to the British. Keshavsut, the father of modern Marathi poetry, published his first poem in 1885. The years in between witnessed a great change in the literary scene. In fact, modern Marathi literature took shape during this period.

As in other Indian languages, the Christian missionaries played an important role in the production of scientific dictionaries and grammars. Periodicals slowly became popular, starting with *Digdarsan* in 1840. About the same time *Darpan*, the daily newspaper, also came into being. Modern Marathi prose flourished though various new literary forms like the essay, the biography, the novel, the short story, the prose drama etc.

Chiplunkar's *Nibandhamala* (essays), N. C. Kelkar's biographical writings, the novels of Hari Narayan Apte, Phadke and V. S. Khandekar, and plays of Mama Warerkar and Kirloskar are particularly worth noting. Apte's novel *Pan Lakshat Kon Gheto* which deals with the poignant experience of a child-window has been translated into many Indian languages.

Similarly Khandekar's *Yagati* which has won for him the Jnanapith Award. Vijay Tendulkar and C. T. Dhanolkar have written and produced a good number of plays which have earned a reputation beyond the borders of Maharashtra during the last quarter of a century. Marathi has a flourishing contemporary literature in every branch of verse and prose.

The brigtest star of modern Oriya literature is Fakir Mohan Senapathi. He was a poet, novelist, administrator, social reformer, printer, businessman and patriot all rolled into one.

ORIYA

Of all the North Indian languages, Oriya happens to be the least affected by Perso-Arabic influence and is nearest to the original Sanskrit. However, its literature sprouted in the language of the people expressing their dreams, thoughts and experiences. Though some scholars trace the origin of Oriya literature to the 9th cent. A.D., the language flows into a regular stream of poetry only by the 13th century. In the initial four hundred years, we notice a reflection of different religious faiths, Buddhism, Saivism, Shaktism and Vaishnavism (with twin branches of Rama cult and Krishna cult). We also find a considerable amount of folk literature.

Sarala Das of the 14th century is the Vyasa of Orissa. Strangely enough, this semi-literate kisan became a leading poet of the language. His real name was Sidheswar Parida, but he adopted the name as he considered himself the Das (servant) of the deity, Sarala Devi. The quality and fervour of his devotion is exempli-

Exponent of Distilled Verse

Sachi Routroy, 70, winner of the Jnanpith Award for 1986 is regarded as the harbinger of freedom in meter, rhyme and ornamentation. As an exponent of 'distilled poetry' he believes that it should capture the readers' imagination with its own innate powers.

He has a mastery of imagery which enables him to transmit his own poetic experiences to his readers through colour, sound and telescopic designs and his poetry is endowed with a robust humanism interspersed with a defiant declaration of human rights against a decadent social order.

He started writing poetry at a very early age and his first poem appeared when he was just 12 years. He also wrote a book of poems entitled 'Patheya' which was published in 1932. Since then he has published 16 outstanding collections of poems. Apart from poetry, Routroy has brought out many volumes of remarkable fiction, poetic drama, critiques and research works on literature, which bear eloquent testimony to his versatile creative genius.

He heralded the advent of new poetry and modern era in Oriya literature with Patheya and Pandulipi. But it was in 'Kavita 1962' that his new trend was crystalised.

Routroy's contribution to modern Oriya prose is equally significant.

fied in the manner in which he has adapted the *Mahabharata*. His *Vilanka Ramayan* and *Chandipurana* are also well known. Sarala Das is followed by a group of scholar-poets who deliberately eschewed Sanskrit and wrote in simple Oriya to serve the masses. They are Balarama Das (Oriya *Ramayana* and *Mahabharata)* Jagannatha Das *(Bhagawata Purana),* Anant Das, Yosowant Das and Achyutanand Das.

About the end of the 15th century and the beginning of the 16th, the influence of Chaitanya and Jayadeva was dominant on Oriya literature. This continued in different ways for about three centuries. The philosophy of Chaitanya and the poetry of Jayadeva changed the pattern of versification in Oriya. Upendra Bhanja is the most outstanding poet of this new emphasis. For erotic description and play of words, Upendra is specially noted.

Vaishnavism propagated by the Chaitanya school produced welcome results in literature. The lyrical poet Baladeva Rath, Dina Krushna Das and Bhaktacharan Das are other outstanding poets. Later in period of time we may remember the lyrical singer Gopal Krishna in the blind poet Bhima Bhoi.

Prose was practically born in the British Period, and it developed with amazing rapidity. Poetry found new ways of expression, and new themes covering political, social and patriotic sentiments were handled by poets, novelists and playwrights. In modern Oriya literature, the brightest star is Fakir Mohan Senapati (1843-1918). He was poet, novelist, administrator, social reformer, printer, businessman and patriot, all rolled into one. Strange to say, he had only two years' formal education.

He undertook literal translation of the *Ramayana* and the *Mahabharata* into Oriya. His *Galpa-Swalpa* (Collection of stories) and a novel *Chaman Atha Guntha* are particularly well known. This novel is a masterpiece of realistic fiction, depicting the victimization of innocent weavers. Next to Senapathi comes poet Radhanath whose magnum opus is the epic *Mahayatra,* written in blank verse on Miltonic lines. Other distinguished poets of the modern period are Gopabandhu Das, Baikunthanath Patnaik, Kalindicharan Panigrahi, Mayadhar Mansinha and Guruprasad Mohanty. Gopinath Panigrahi's *Matira Manisha* and Mohanty's *Amritara Santana* (Sons of

Nectar) have been translated into other languages. Mohanty has specialized in dealing with tribal life. His *Mati Matala* (The Fertile Soil, 1964) has won the Jnanpith Award. Among the outstanding playwrights we may mention the names of Manoranjan Das, Bijaya Kumar Mishra and Biswijit Das.

PUNJABI

Punjabi emerged as an independent language in the 11th century from the Sauraseni Apabhramsa according to many scholars though Paisachi also has contributed to its development in the modern form. The rise of present day Punjabi has been parallel with the formation of the Gurmukhi script, evolved by the Sikh gurus.

Punjabi literature was the natural successor to Vedic and Arabic—Persian literatures and *Apabhramsa* literature which contained dramas, stories and narrative poems. Punjabi poetry dates back to the beginning of the 13th century when Baba Farid composed his *Sloks* and hymns. Though he was a Muslim mystic, he adopted the Indian literary tradition. Guru Nanak Period in Punjabi history was a period of literary renaissance.

The golden period of Punjabi literature extends from the birth of Guru Nanak to the passing away of Guru Gobind Sing. Most of the religious poetries of this period is preserved in the 'Adigranth'.

The literature of pre-Nanak period can be linked to the tradition of the 'Gorakpanthis' who composed *sloks* and *padas*. Another poetic genre which was popular then is called *Var*, which sings the praise of great warriors and kings. Amir Khusrau (1253-1325) has composed a *Var* on Tuglak Shah.

The golden period of Punjabi literature extends from the birth of Guru Nanak (1469) to the passing away of Guru Gobind Singh (1708). Most of the religious and mystic poetry of this period is preserved in the *Adi Granth* (the first book), a great anthology of *Bhakti* poems, which is considered a sacred scripture by the Sikhs. In it, a major portion of poetry is arranged in different *ragas* and is thus meant to be sung.

The tradition of *Sufi* and Qissa poetry had its influence on Punjabi poetry. Bulhe Shah and Waris Shah composed exquisite verses in the above genres. The best in Sanskrit literature was also imbibed through translation spread over 200 years (1600 to 1800) covering the two epics, the *Ramayana* and the *Mahabharata, Bhagavat Gita* and *Upanishads*.

When we come to the modern age (1850-onwards) we have to remember first the contributions of Sir Attar Singh. The Ludhiana Christian Mission brought out a translation of the Bible in Punjabi in 1852, and a dictionary of Punjabi language in 1854. The Punjabi paper *Khalsa Samachar* was started from Amritsar.

A very important personality of Punjabi renaissance is Bhai Vir Singh (1872-1957). His religious epics, lyrics and nature poetry show clear signs of western influence. Puran Singh and Kripa Singh are his distinguished contemporaries. The leading poets of nationalism in Punjabi are Gurmukh Singh Musafir (1899-1976) and Hira Singh Dard (1889-1964). We have also literature of the progressive trend in ample measure both in poetry and prose. Among the outstanding modern poets mention may be made of Mohan Singh (1905-78), Amrita Pritam (b.1919) and Harbhajan Singh (b.1920).

Amrita Pritam has won the Jnanpith Award. Gurubaksh Singh Preet Lari, Harcharan Singh, Sant Singh Sekhom and Gurdial Singh Khosla among playwrights, Bhai Vir Singh, Nanak Singh, SS Narula, K.S. Duggal and Amrita Pritam among fiction writers are noteworthy names in Punjabi.

SANSKRIT

The beginnings of Sanskrit literature may be traced back to Rigvedic poetry (1500-1200 BC) which can be regarded as religious in character only in the widest sense of the term. Rigvedic poetry contains all the aspects which are found in a *kavya* by way of themes and style. The Vedas comprise sacred hymns, sacrificial formulae and quite a few hymns which are of secular character

Literature was produced in the periods that followed more and more interested in ritual, religion and philosophy. Yet in the *Brahma* *nas, Aranyakas* and in the *Upanishads* there occur passages which are remarkable for their literary beauty.

Then there was a period commencing with the age of Panini (5th cent. BC) when books on ancillary sciences or vedangas were written. eg. Panini's *Ashtadhyayi,* Pingala's work on metres etc. In the third period of Sanskrit poetry known as the Classical period we have the epics, *Mahakavyas, Puranas, Narrative poems* (adulatory poems) *Prasasti Kavyas, and Sandesha Kavyas* (message poems). The two major epics, the *Mahabharata* of Vyasa and the *Ramayanaa* of Valmiki are outstanding creations of the Indian poetical genius. They have considerably influenced the life, culture and literature of India.

The theme of the *Mahabharata* (the biggest epic in the world) is the battle between the Kauravas and Pandavas on the plains of Kurukshetra (1000 BC). The *Bhagavadgita* is one of the many episodes in this epic. The *Ramayana* deals with the adventures of Rama in 24,000 couplets. *Brihatkathamanjiri* of Kshemendra and *Kathasaritsagara* of Somadeva are important *Katha* literature. *Panchatantra* is the oldest collection of fables in Sanskrit (4th cent. AD).

The *mahakavyas* which according to accepted canons should contain majestic descriptions of war, nature and political intrigues are the pride of Sanskrit literature. Asvaghosha's *Buddhacharita* and *Saundarananda* are Buddhist *Mahakavyas, Kumarasambhava* of Kalidasa deals with the puranic story of the marriage of Parvati and Siva and the birth of Skanda. The poem opens with a scintillating description of the Himalayas.

Raghuvamsa is another *mahakavya* of Kalidasa where the poet is seen at his best. The later poets were guided more by the form than by the spirit behind the form. However, the greater among them are Bharavi (c. 600). Bhatti (7th century), Kumaradasa and Magha (c., 700).

Among the message poems it is *Meghaduta* by Kalidasa that has set the pattern. Of the other fifty message poems, the more well known are *Sukasandesa, Chatakasandesa* and *Hamsasandesa.* The *Harshacharita* and *Kadambari* (Bana) are justly regarded as the crowning achievements of Sanskrit prose fiction.

Sanskrit drama has a long history tracing back to Asvaghosha (2nd century AD). Only fragments of his three plays are available. A century later we have Bhasa who is ascribed to have written 13 plays (discovered in Trivandrum). The conventions of Sanskrit drama are all observed by Bhasa. Kalidasa is the author of three outstanding plays *Malavikagnimitra, Abhijnana Sakuntala* and *Vikramorvasiya.* His treatment of the Sakuntala story in particular reveals him as a master of the dramatic art superior to all others in portraying the emotion of love. Sudraka is another important dramatist whose *Mrichha Katika* is well known. Of their successors in this literary form the more important are Visakhadatta, Harsha, Bhavabhuthi, Krishnamisra, Rajasekhara and Bodhayana.

The Indian tradition of 'Kaviya Sastra' and applied literary criticism is by and large the Sanskrit tradition which almost all the modern Indian languages have wholeheartedly adopted.

There is also an abundance of philosophical and technical literature in Sanskrit. Of these 'Vedanta' was to exert the most profound effect culminating in the writings of Sankara (AD 800) leading to further interpretation of Ramanuja and Madhava. In the sphere of domestic and social conduct there evolved a body of literature known as dharmasastra.

As regards politics and state craft Kautilya's *Arthasastra* is well known. Equally known are the mathematical treatises of Aryabhata and Bhaskara and the medical books *Charakasamhita* and *Susruta.*

The Indian tradition of *Kavyasastra* and applied literary criticism is by and large the Sanskrit tradition which almost all the modern Indian languages have adopted.

The great stalwarts Bharata, Dandin, Vamana, Ananda Vardhana, Kuntaka and Abhinavagupa — all belong to the period covering the dark ages of Europe. These theoreticians gave us valuable concepts like *rasa, guna, riti, vakrokti, dhwani, rasadhwani* and *aucitya.*

Indian Writing in English

Though foreign in its origin, English has been adopted in India as a language of education and literary expression besides being an important medium of communication on a vast scale. Its history in India commences with Ram Mohan Roy's (1774-1833) campaign for introducing scientific education in India through the English medium.

He could use the English language effectively though he learnt it only after he was 16 years of age. But when Vivekananda spoke and wrote in English, Americans described him as a 'perfect master of the English language'.

Among those whose writings in prose were considered as literature the name of Jawaharlal Nehru (1889-1964) stands out. He is particularly remembered for his Glimpses of World History, Discovery of India and An Autobiography (1936).

Gandhiji is reported to have cultivated English carefully and prayerfully. The language became a sharp and strong instrument in his hands. His precision, economy and clarity in the use of English.is uneuqlled. Nirad Choudhuri (b 1897) is an internationally accepted writer of English. His Autobiography of an Unknown Indian (1951) is particularly well known.

We have the extraordinary girl Toru Dutt (1855-76) who died at 21 leaving some fine poems; and then we have Sarojini Naidu (1879-1949) whose romanticism charmed readers in India and Europe. Her Golden Threshold (1905). The Broken Wing (1917), and the Sceptered Flute (1946) are well known. Aurobindo (1872-1950) who had his education in Cambridge mastered not only English, Greek and Latin but also French and Italian. No doubt he had his grounding in Bengali and Sanskrit. He was poet, philosopher and sage. For him poetry was a mode of meditation, a dhyanamantra. His epic, Savitri, is outstanding. His Life Divine (2 vols) is equally outstanding from another angle.

Tagore has written poems in English also, Gitanjali in English is his own free rendering of his poems in Bengali. The lyrical quality of Gitanjali is universally accepted. During the contemporary period, we have quite a few Indians, who write poetry in English. The more well known among them are Dom Moraes (A Beginning), Nissim Ezekiel (The Unfurnished Man), P. Lal, A. K. Ramanujan (whose translations of Tamil classics are internationally known), Kamala Das, Arun Kolatkar and R. Parthasarathy.

In the field of Indian English novel the three senior writers who began to write in the early thirties are Mulkraj Anand, R. K. Narayan and Raja Rao. British education and mode of writing had a tremendous impact on the writings of Anand (b. 1905). His major novels Coolie (1933), Untouchable (1935), Two Leaves and a Bud reveal his concern for the underprivileged in India.

R. K. Narayan has projected 'Malgudi' as the locale for most of his stories. He has a keen eye for the comic in the life around him. Swami and His Friends (1935), Bachelor of Arts (1937), The Financial Expert (1952), The Guide (1959) and Waiting for the Mahatma (1955) are his popular novels. Raja Rao (b. 1909 has written only four novels, but he has felt the pulse of India better than others. 'Kanthapura' (1938), The Serpent and the Rope (1960) and The Cat and Shakespeare (1965) are significant achievements.

Other novelists of repute are G. V. Desani, M. Ananthanarayanan, Bhabani Bhattacharya, Malgonkar, Arun Joshi,Kamala Markandaya, Anita Desai and Khushwant Singh. Most of these novelists have written good short stories also. As regards drama and the essay the contribution is not substantial. Among the critics and historians of literature one could recall the names of K. R. Sreenivasa Iyengar, C. D. Narasimhaiah and M. K. Naik.

Bharata's *Natyasastra* is the earliest treatise available on the subject.

Sanskrit continued to be a vehicle of literary expression even in the modern period, though it was less prolific not being a language of the ordinary people. *Mahakavyas* were composed on the Buddha, Christ, Sankaracharya and Narayana guru. There were also long poems on Mahatma Gandhi, Rajendra Prasad, Tagore, Jayadeva and Jawaharlal Nehru. Quite a few books have been translated from languages like Tamil, Telugu, Malayalam etc. into Sanskrit.

Influenced by the languages of the west and by the active modern Indian tongues, Sanskrit writers have written poems, biographies, novels and short stories in the contemporary period. Both in quality and quantity they may not compare favourably with similar writings in other Indian languages. But the Sanskrit Muse is kept alive by lovers of the language.

SINDHI

The origin and ancestry of the Sindhi language are disputed by scholars even today. Many scholars hold the view that Sindhi belongs to the ancient language of the Indus valley prior to the period of Sanskrit. Even in the matter of script, there has been considerable change. The new Perso-Arabic script was approved only in 1853.

Mirza Qalich Beg was the most prolific and versatile writer Sind has produced. He has about 350 titles to his credit. His 'Zinat' is the first Sindhi novel of merit. 'Zinat' is the heroine's name.

The early poetry in Sindhi was based on local romantic tales. The early poems called Gahun were not recorded but handed down by word of mouth. Pir Sadruddin (1290-1409), an Islamic missionary, is considered the pioneer of Sindhi religious poetry.

The first great Sufi poet is Qazi Qazan (c. 1465-1551). His seven verses have been preserved. He was influenced by Bhakti Kavya movement of North India. Second only to Qazan is Shah Karim (1637-1623) whose verses are imbued with mystic thought.

What is important to note in the early Sindhi poetry is the fusion of the Islamic and Hindu thoughts and beliefs. Along with Qazan another major poet Miyun Shah Inat (1625-1713) has composed poems in the classical idiom, yet heralding a new era in Sindhi poetry.

The premier poet of Sindhi, however, is Shah Abdul Latif Bhitai (1689-1752). His collection of poems titled *Rasalo* (Message, 1866) is an expression of high thoughts with great artistry. He provides a varied fare in his poems. We have also other important poets like Ruhal (1734-1804), Chain Rai Sami and Dalpat (1769-1841) who were Vedantists and others who wrote religious poetry of Hindus and Christians.

Coming to modern times, we have poets who followed the Persian poetical forms like *ghazals, qasidas, rubais* and *mathnavis*.

Among them the most important are Gul Mohamad, Muhammad Qasim, Muhamad Fazil Shah, Hafiz Hamid and Mirza Qalich Beg. Freedom movement came to Sindh soon after the partition of Bengal. Lalchand Amardinomal was the champion of the national movement among the writers. Poets and prose writers gave expression to nationalism and progressivism as in other Indian languages.

Mirza Qalich Beg (1853-1929) was the most prolific and versatile writer Sind has produced. He has about 350 titles to his credit, originals and translations. His *Zinat* (Heroine's name, 1890) is the first Sindhi novel of merit. Other important novelists are Lalchand, Amardinomal, Bherumal Meharchand, Ram Panjwani, Gobind Malhi, L. H. Ajwani and Krishin Khatwani.

TAMIL

Tamil language has the special claim of being at once classical like Sanskrit, Greek or Latin and vigorous and modern like the modern Indian languages. Its history can be traced back to the age of *Tolkappiyam* the earliest extant Tamil grammar generally ascribed to 500 B.C. Among the Dravidian languages it is least influenced by Sanskrit, though there is a certain degree of influence.

The earliest extant literature of the Tamils is called Sangam literature and it is dated between 500 BC and 200 AD. Though a considerable part of the early poetry has been lost, some of the bards and patrons decided to preserve a part of it in certain anthologies (about 4th century AD). These are the Ten Idylls (*Patirruppattu*) and the eight anthologies (*Ettuttokai*). Four hundred and seventy three poets, of whom thirty are women, have been identified. These are mainly classified into two. *Akam* or esoteric dealing with love and *Puram* or exoteric dealing with war.

In this period, Tamil literature was considerably bound by literary conventions. The poets were keen on keeping up the tradition. The land was treated as five regions viz. mountains, forests, fields, coasts and deserts and the theme of love in five aspects viz. union, patience, sulking, wailing and separation. The poet dealing with a certain aspect of love restricted himself to a particular region, season, hour, flora and fauna. These literary conventions are explained in *Tolkappiyam*.

Purananuru is 400 verses on Puram themes. It serves as a window on the Tamil people 2000 years ago. *Agananuru* is 400 poems on love themes. The length of these poems varies from 13 to 37 lines. There are other collections like *Natrinai, Kuruntogai, Ain-kurunuru, Paripadal,* etc. which are quite well known.

Subramania Bharati is the greatest poet of modern Tamil. His patriotic poems have inspired thousands of readers in his time. Personal freedom, national liberty and fundamental equality are his theme.

Tiruvalluvar's Tirukkural is acclaimed to be the greatest Tamil classic. It expresses the most profound thoughts on the many problems of life. Each verse is a couplet composed with great economy of words. The book is divided into 133 chapters each containing 10 verses. The chapters are arranged in three books dealing with virtue, wealth and pleasure.

Round about the 3rd century AD, Tamil has produced two epics *Silappadhikaram* and *Manimekhalai* which are considered twin epics like the *Ramayana* and *Mahabharata*. The author of *Silappadhikaram* was the son of a Chera King Ilango Adikal. The title means the "Story of the Anklet" and the epic describes the moving story of Kannagi.

Manimekhalai is the daughter of Madhavi and Kovalan, the hero of *Silappadhikaram*. *Kamba Ramayanam* is an immortal classic in Tamil. Though Kambar based his work on the Sanskrit *Ramayana* of Valmiki, his rendering shows that he was a supreme artist. It is different in plot, in construction and in the delineation of character. *Kambaramayanam* runs to 10,368 verses.

Tamil is rich in devotional literature. Nayanmars are the exponents of Saivism and Alwars that of Vaishnavism. Thiru Jnanasambandar, Thirunanukkarasar, Sundarar and Manikkavacakar are the four great Nayanmars. The great Alwars are 12 in number. Kulasekhara Alwar and Andal are specially remembered. There are 5 major *kavyams* and 5 minor *kavyams* in Tamil. Jain and Buddhist works are in abundance in the language.

Coming to the period between 13th & 18th centuries, we notice that Muslim and Christian impact on Tamil literature. Umaruppulavar has composed a long poem of 5000 verses on the life of prophet Muhammed. The Christian influence began with the Portuguese and continued with the Danes, the Dutch, the French and the British. Beschi, Caldwell, Winslow and Pope have made significant contributions to Tamil. The Italian priest Beschi (1680-1747) composed the magnificent poetical work *Tembavani* (The Insatiable Beauty) on the life of St. Joseph. Vedanayagam Pillai and Krishna Pillai are two other Christian poets.

Twentieth century has produced many talented men of letters in various fields, Poetry, Prose, Drama, Novel, Biography, Short Story etc. Dr. Swaminatha Iyer unearthed many literary works and edited them. Swami Vadachalam, Thiru V. Kalyanasundera Mudaliar and V. O. Chidambaram Pillai are great writers of the modern period. However, the greatest poet of modern Tamil is Subramania Bharati whose patriotic poems have inspired thousands of readers in his time. Personal freedom, national liberty and the fundamental equality of all men find eloquent expression in his verses.

Rajam Ayyar, Madhavayya, Pudumaipithan, Ku-pa, Rajagopalan and Kalki Krishnamoorthy have contributed much to the field of Tamil fiction. These writers along with Bharati ushered in the new epoch of Renaissance in Tamil literature.

TELUGU

Among the Dravidian languages, Telugu exhibits the greatest influence of Sanskrit. Telugu literature is generally divided into six periods. 1. The Pre-Nannaya period (upto 1020 AD). 2. The age of the Puranas (1020-1400). 3. The age of Srinatha (1400-1510). 4. The age of the Prabandhas (1510-1600). 5. The Southern period (1600-1820) and 6. The Modern Period.

In the earliest period there are only inscriptions from 575 AD onwards. Nannaya's (1022-1063) translation of the Sanskrit *Mahabharata* in Telugu is the first piece of Telugu literature as yet discovered. The diction is so masterly that historians think that there must have been earlier works in Telugu. After the death of Nannaya there was a kind of social and religious revolution in the Telugu country.

The father of modern Telugu literature is K. Viresalingam Pantulu who wrote a novel 'Rajashekhara Charithamu', inspired by the 'Vicar of Wakefield'. His goal was to erradicate social evils.

Virasaivism propagated *bhakti* towards Siva as the only means of attaining salvation. Tikkana (13th cent.) and Yerrana (14th cent.) continued the translation of the *Mahabharata* started by Nannaya. *Yerrana* was also a devotee of Siva. Quite a few poets continued writing in Telugu and we come to the age of Srinatha.

During this period some Telugu poets translated Sanskrit poems and dramas while others attempted original narrative poems. The popular Telugu literary form called the *Prabandha* evolved during this period. Srinatha (1365-1441) is the foremost poet who popularised this style of composition (a story in verse having a tight metrical scheme). Srinatha's *Naishadham* is particularly well known.

We may also refer to the *Ramayana* poets. The earliest Ramayana in Telugu is generally known as *Ranganatha Ramayana* though authored by Gona Buddha Reddi. Then there are the great religious poets like Potana (1450-1510), Jakkana (second half of 14th century) and Gaurana (first half of 15th century).

The golden period of Telugu literature is the 16th and 17th centuries. Krishnadevaraya's *Amukta Malayada* is regarded as a Mahakavya. Peddana's Manucharita is another outstanding Mahakavya. Telugu literature flourished in the south in areas like Madurai, Thanjavoor etc. and that is why the age itself is called the 'Southern Period'. We find a comparatively larger number of poets among the rulers, women and non-Brahmans. They popularised the desi metres.

With the conquest of Deccan by the Moghuls, there was a period of decadence (1750-1850) in literature. Then emerges a period of transition (1850-1910) following a long period of Renaissance. European savants like C. P. Brown played an important role in the development of Telugu language and literature. In common with the rest of India, Telugu literature of this period was increasingly influenced by European forms like the novel, the short story, the prose drama, belles letters etc.

The father of modern Telugu literature is K. Veeresalingam Pantulu (1848-1919) who wrote a novel, *Rajasekhara Charitamu* inspired by the *Vicar of Wakefield*. He was the first person in modern times to use literature to eradicate social evils. He was followed by Rayaprolu Subba Rao, Gurajada Appa Rao, Viswanatha Satyanarayana, Katuri Venkateswara Rao, Joshua Devulappalli Venkata Krishna Sastri and others in the sphere of poetry. We also find the progressive movement, free verse movement and the *Digambara* style finding expression in Telugu verse. The well known modern Telugu novelists are Unnava Lakshminarayana (of *Malappalli* fame), Viswanatha Satyanarayana (*Veyipadagalu*), Kutumba Rao and Buchi Babu.

URDU

The grammatical structure of Urdu is based on Western Sauraseni Apabhramsa but its vocabulary, idioms and literary traditions drew heavily from Central Asian, Turkish, and Persian sources. The literary flowering of Urdu does not go farther than the 13th century. Urdu literature developed in the bazaar, the monastery and the *salons* and all these places had their own characteristic features.

Traditional Urdu poetry comprises of a few literary genres that have a definite history and development. They are the *masnavi* (every couplet has a different rhyme), ghazal (talking to the tender sex), qasida (a genre akin to the ode), *marsia* (elegiac poem), rekhti and nazm. The early stages of the development of Urdu was a two-pronged movement. 1. The saints and mystics made it a vehicle for the propagation of their unity and compromise. 2. The Hindu saints of the *Bhakti* movement under the Islamic influence encouraged the idea of oneness. The literary precedence of the South over the North can only be understood in the historical context.

Traditional Urdu poetry made considerable progress in the 18th century under the influence of what is called the Delhi School. With the verse of Ghalib the traditional poetry reached its pinnacle.

Sultan Alauddin Khilji invaded the South during 1294-1311 AD. The cultural confluence was responsible for the production of good literature in the South. The earliest known writer in Deccani Urdu is Shaikh Ganjulilm (d. 1393). The next notable figure is Khwaja Banda Nawaz (1320-1422). His Mirajul Ashiqeen is a Sufistic treatise in prose. Other *masnavi* writers are Mukimi of Bijapur and Ahmed Ajiz.

The Persian tradition has taken root in Urdu poetry in the 17th century. Mulla Wajhi is a great literary figure of this period. His *masnavi*, Qutb Mustari (1609) and his rhyming prose allegory *Subras* (1634) are the gems of Urdu literature, produced in the Deccan. When the tradition of the *masnavi* spread to the North, the Deccani language yielded place to the Khadiboli or the Rekhta or Urdu.

The *masnavi* now yielded place to the *ghazal*, which became the most popular form of Urdu poetry. Though ghazals were written by many poets like Amir Khusrao, Hashmi and Qutb Shah, Wali was the most outstanding. He gave a new dimension to the ghazal. He was a passionate lover of beauty. Wali also composed a few *qasidas*. Seraj (1715-63) is another distinguished composer of ghazals.

Traditional Urdu poetry made considerable progress in the 18th century under the influence of what is called the Delhi School of Urdu poetry. They further standardised the diction. The more important among them are Khawia Mir Dard, Mir Hassan and Mushafi. There is also the Lucknow School of poets who had their own valuable contribution to Urdu poetry. The major poets are Shaik Imam Baksh Nasikh. Haidar Ali Atas and Ali Ausat Rask. Traditional Urdu poetry reaches its pinnacle with the verses of Ghalib.

During the last three decades of the 19th century, the activities of the Urdu writers were influenced by the towering personality of Syed Ahmed Khan (1817-98) who started the Aligarh movement inspired by Rammohum Roy.

Many Urdu poets were influenced by Iqbal (1875-1938), a poet of patriotic passion, who adored nature. In Urdu poetry we see the romantic and progressive trends.

Urdu fiction is rich in *Dastan* (cycles of legends) mostly translated from Persian. The works of Sarshar, Nazir Ahmed and Sharar mark the beginnings of the novel. Rusva's *Umrao Jan Ada* (1899), a novel appearing in the form of an autobiography of a dancing girl of Lucknow, has achieved international standards. Premchand, who is claimed also by Hindi is a giant among Urdu novelists. Drama also has flourished considerably in Urdu. Banarasi, Talib, Ahsan and Lucknavi are famous as playwrights. Husain Azad's anecdotal history of Urdu poetry titled *Ab-i-Hayat* has laid the foundations of modern literary criticism.

DOGRI

Dogri is one of the modern Indian languages spoken in the state of Jammu and

Kashmir and also in Himachal Pradesh. It has traces of old Sanskrit dialects as well as the dialects spoken by the Khasas, Yavanas, Takkas etc. in the Dogra Hill areas. Rev. Carey has made mention of it in 1816 and John Beames in 1867. Its old script Takari has been replaced by the Devanagari script.

Dogri has a rich tradition of folk literature consisting of folk-tales, riddles and proverbs. These deal with every aspect of life from the cradle to the grave. There are also quite a few long narrative poems in praise of gods known as *Bhetas*.

Among the early Dogri poets mention may be made of Manak Chand (16th century), Gambhir Rai (17th century), Devi Ditta (18th century) and Ganga Ram (19th century) Rajauli (the Genealogy of Kings) a translation of a Persian work by Teheldas (1614-59) is the earliest prose work in Dogri. The first book printed in Dogri is the translation of the New Testament brought out (in 1818) by the Serampore missionaries.

During the first four decades of the 20th century seven poets wrote in Dogri. Among them Hardutt Shastri (1890-1956) is the most outstanding. He wrote on socio-religious and patriotic themes. Dini Bhai Pant (b. 1917) is considered to be the first Dogri poet of modern consciousness. He gave a new dimension to Dogri poetry. Patriotism was the dominant theme of Dogri poetry for some years after the Pakistanti invasion. It gave way to the poetry of socialism.

The modern creative phase of Konkani literature began during the 20th century. The genius of Shenoy Geombab was the main inspiration. There are quite a few writers who are very popular.

Ghazal is popular in Dogri. Kunwar Viyogi is outstanding in the composition of ghazals. Short stories are popular in the language. Narendar Khajuria writes fine stories and other forms of prose. He is a past-master in using irony and humour. There are also a few plays and novels in Dogri. Among the novelists Ved Rahi's name stands out.

KONKANI

Though Knonkani is an independent language, in many respects it is close to Marathi and Hindi. Thus its natural script is Devanagari though Kannada, Malayalam and Roman scripts have also been in use depending on circumstances.

Konkani developed an indigenous literature long before the Portuguese conquest, but much of it has been lost. The Konkani poets of the traditional type made the devotional works of the Maratha Brahmins their own. Tales of the *Ramayana* and the *Mahabharata* are preserved in the Roman script. Krishnadas Sharma (16th century) had done the translation from the Marathi original.

Father Joachim de Miranda (18th century) is the author of the largest Konkani hymn *Riglo Jesu Mollantum* (the Resurrection of Jesus). Another important work *Papience Xerathini* (Protector of Sinners) is by Dona Barreto. A considerable amount of Christian literature was written in Konkani during the 17th century.

The modern creative phase of Konkani literature began during the 20th century. The genius of Shenoi Goembab (1877-1946) was the main inspiration. Among the modern poets, special mention may be made of B. Borkar (b. 1910), M. Sardesai (b. 1925), and R. V. Pandit (b. 1917). Borkar writes in Marathi too. Konkani plays, particularly of the folk variety, are quite popular. Fiction is gaining ground in the contemporary period. The important novelists are Reginaldo Fernandez, M. Sardesai and V. J. P. Saldhana. Journalism is developing fast which also means the Knonkani prose is coming into its own.

MAITHILI

The present day Maithili speaking area is about 30,000 square miles in extent. The first important literary work is a collection of Buddhist mystic songs called *Caryapadas* (8th to 11th century). In the age of Jyotiriswara (c. 1300-1400) Maithili literature flourished. He himself contributed several works in poetry, drama and prose. His most famous work is the play, *Dhurttasamagama*. Vidyapati (1360-1448) was patronised by several kings and queens. He wrote of love and separation, of nature, of devotion to Ganges, Krishna, Siva, Sakti and of birth and death. The next stage in the development of Maithili literature was the rise of medieval drama. Nandipati's *Srikrishna Keli Mala*, Upadhyaya's *Parijataharana* and Ratnapani's (c. 1850) Ushaharana are outstanding works.

Coming to the modern period, we have quite a few poets, novelists and prose writers who are very popular. Some important names are Manabodha, Vaidyanatha, Paremeswara Jha, Harimohana Jha, Kumara Gangananda Sinha, Mayananda, Lalitha, Dhirendra, Ramananda Renu and Somadeva.

MANIPURI

Manipuri is a Tibeto-Burmese language. It is an amalgam of seven dialects spoken by seven clans. The language has a script of its own. The history of Manipuri literature is divided into three periods: the Ancient Period from AD 33 to the end of the 17th century, the Middle Period from the beginning of the 18th century till the middle of the 19th century and the Modern Period from mid 19th century onwards.

Manipuri has rich tradition of folk-literature. The bulk of Manipuri literature down to the 19th century was folk in content and style. It consists of folk-songs, ballads and folk-fables.

Manipuri has a rich tradition of folk literature. As a matter of fact, the bulk of Manipuri literature down to the 19th century was folk in content and style. The folk literature consists of folk-songs, ballads and folk-tales. It is extremely difficult to date books and assign them to authors. The *Kumbaba* is a royal chronicle of Manipuri. It contains records from 33 AD when Pakhangba ascended the throne. Certain important prose works are *Numit Kappa* (Shooting the Sun, c. 10th c.), *Naotinkhon Phambal Kaba* (between 1576 and 1697), *Lethak Lekharol* and *Pantoibi Khongul*, both of 17th century. The ancient Manipuri style is ornate and verbose

Specimens of traditional poetry are to be found in the translation and adaptations of Indian classics. The best specimen is *Hijan Hirao* (Royal Boat). In this poem, human qualities are ascribed to animate objects and nature. *Ram Nongaba* (Death of Rama) by Labanga Singh (18th century) describes the death of Rama in beautiful Manipuri.

Modern Manipuri poetry is recent in the sense that it had to wait till the second decade of this century to get a form. *Le Paren* (Garland, 1929) by Kamal Singh is an outstanding work. A.D. Singha (1907-44) is a composer of epic poetry in Manipuri. His *Kamsa Badha* (1942) is a notable work. There are also experimental poems composed after 1947, interesting dramas, about a dozen readable novels and some short stories of worth in Manipuri.

NEPALI

The Nepali language belongs to the Indo-Aryan family. It has descended from the Khas prakrit. Nepali is fairly rich in folk literature. Its traditional poetry has come to shape only in the 18th century. Subananda Das was one of the recognised poets of the early period. He was followed by Shakti Ballav Aryal and Udayanand Aryal.

Most of the writers of this period were well-versed in Sanskrit and hence Sanskrit patterns were approved for Nepali compositions. *Gopika Stuti* and *Srimad Bhagawat* were translated into Nepali. Basant Sharma's *Krishna Charita* is regarded as the first *khandakavya*. Bhanubhakta translated *Adhyatma Ramayanam* into Nepali (1841-68), Motiram Bhatta, Lekhnath and Balakrishna Sama are important poets of the modern period.

In Drama, Novel and Short Story, Nepali has claims for sizeable contributions. Among the playwrights the more important names are S B. Aryal and Balakrishna Sarma, and among novelists Pratiman Lama, Rudraraj Pandey and Shiva Kumar Rai. Parasmani Pradhan is a good prose writer and researcher

RAJASTHANI

Rajasthani is an Indo-Aryan language having its roots in Vedic Sanskrit and Sauraseni Prakrit. Its script is Devanagari. It has a fund of folk literature consisting of ballads, songs, proverbs, folk tales and panegyrics.

Historians have divided traditional poetry into two periods; the early period starting from 1050 AD and ending with 1450 and the second (medieval) period from 1450 to 1850. Thereafter it is modern poetry. That early period abounds in Jain poetry. The richest period for poerty and prose compositions is the next period.

All the masterpieces of traditional poetry are products of this period. Besides a great many full-length poetic works dealing with wars, mythological events and devotional themes, several *Dubas* and *Gitas* (a kind of metre) have been composed on all kinds of subjects. Padmanabha, Vihu Sujo, Aluj are a few of the important composers.

Modern poetry starts from the forties of this century. This reflects the impact of western culture. The first book of modern poetry Badli, (Cloud) by Chandra Singh (b 1912). It describes the joys and sorrows of rain in the desert. N. R. Sanskarta, N. S. Bhatti, R. Kalpit and G. L. Vyas are important modern poets.

Mention may also be made of Viyaja Dan Detha and Rewat Dan Charan whose contribution to modern Rajasthani literature is considerable.

Drama and novel have not flourished well in Rajasthan; but stort stories (known as *vat*) are many and of a high standard. M. D. Vyas pioneered the modern short story with his *Varas ganth* (The Birth Day, 1956).

INDIAN MUSIC AND DANCE

In music and dance India can legitimately be proud of her past, a tradition dating back to the days of the 'Vedas'.

To an extent, it is established now that Indian Music had its origin in the Vedas where it found its moorings. As centuries rolled on it developed into an integrated well-codified form. Development of music commenced with the folk idiom evolved in consonance with regional ingenuity, and slowly blossomed into classical forms. Though classical music in India differs from region to region, there is an underlying current of unity.

There are two systems of music in India, the

Ravi Shankar during his concert in Cologne, W. Germany

Carnatic and the Hindustani, which are highly grammatized. These are supplemented by folk music, bhajans and kirtans.

Raga is a melodic scheme covered with certain traditional rules, at the same time leaving enough freedom for improvisation. These rules determine and define the notes of a scale for each raga, their order, and their essence which give a particular colour to the scheme. The Melakarta embracing 72 ragas governs the Carnatic scheme. Based on this structure innumerable Janya ragas (derivative ragas) have blossomed. A raga should have a minimum of four notes to ensure a personality. In the earlier years of its evolution, Hindustani music did not have a Melakarta system. Later on due to the efforts of Shri Bhatkande, a streamlining has been done.

The basic character of Indian Music is its emphasis on melody. As melody is a movement of one-tone-at-a-time it naturally becomes progressions of sound patterns in a linear fashion. As a raga is basically an incipient melodic idea, it has perforce to be elaborated to bring forth its aesthetic potentialities. As a result, these formal constructions are either rhythmically bound or free. Also they assume slightly different colourings according to the genius of the masters and these are known as Gharaanas or Bhanis.

The music researchers have concluded that raga, as a concept and practice, matured by the fifth century A.D. If one digs into the past, one would find that it was in the Sama Veda, the seeds of raga were sown, as this was chanted in a descending manner with full seven notes.

A degree of difference exists in the approach to raga formation in the Hindustani and Carnatic systems. The Hindustani system has got a peculiar characteristic that it constantly emphasises the Vadi and Samvadi notes in a raga; all phrasings gravitate towards this. In simple terms Vadi and Samvadi are the two pivotal notes of a raga structure like the reins of a horse. The result is that a number of ragas can be created having the same notes and syntax by altering these centres of gravity. A Carnatic raga, on the other hand, has a way of distributing tonal emphasis thereby giving greater freedom to the musician in creating patterns. Also the Gamakas or graces are characteristically different.

The Hindustani system has its broad sweeps and glides and the Carnatic its almost coiled coil technique. And finally unlike the Carnatic system, Hindustani music is based on the 'time' theory. The morning ragas, the midday ones, the dusk varieties and of course the night and mid-night, not to mention the dawn. In Carnatic music, though there are indications in this regard, in concerts this rigour is not strictly adhered to. Like derivative ragas in the South, there are the Raginis in the Hindustani idiom. There is also an element of gender in Hindustani music. Raginis sport the female gender and of course Ragas the male.

Talas are rhythmic cyles. They have a universal unity. Two plus two cannot but be four. Indian music has got the most complicated variety of tala structures in the world. And this is specially so in Carnatic music where even fractions are harnessed. In the world everything is rhythmic, even the rattle of a train. But that would be linear rhythm. Only when there is a feeling of coming back to the origin a form is ensured, though repetitive or cyclic; say, like the days of the week, Monday to Sunday and Monday again.

The fundamental units of the Indian rhythmic structure are three (thisram) four (Chathusram) five (Khandam) seven (misram) and nine (Sankeernam). On a closer look, it would be discernible that the last two are only mixtures of the second and third. Three + four and four + five. We may leave the vulgar fractions to the virtuosos. As talas are simple arithmetic, there cannot be any difference in the manner of their operations. But while in Hindustani music, the transit from the Vilambit stage (slow tempo) to the Dhrut (fast tempo) is without any strict sense of temporal proportions, in Carnatic music the duration values are

The basic character of Indian Music is its emphasis on melody. As melody is a movement of one-tone-at-a-time it naturally becomes progressions of sound patterns in a linear fashion.

definite. The Dhruta is double the Madhya (middle) which in turn is twice the Vilamba.

COMPOSITIONS

Prior to Thalapakkam Annamacharya, who evolved the Krithi pattern as in vogue today- Pallavi, Anupallavi and Charanam- Carnatic music had its own system. In Tamil Nadu saint composers like Arunagiri Nadhar, Muthu Thandavar, Manikavachagar and Thayumanavar had composed devotional canticles like Thirupugazh, Thevaram and Kirtanas. As there was no system of notation obtaining then, these were learnt and mastered by the ear.

It was Purandaradasa from Karnataka who not only gave shape and form to Carnatic music by perfecting the Krithi pattern but evolving a number of musical exercises in the form of Sanili, Jandai, Dhattu and Geetam. This gave structure to the idiom. It can therefore be said that it was *Purandaradasa* who gave a launching pad to *Thyagaraja, Syama Shastri* and *Muthuswami Dikshitar* to pour forth their devotion into music. This trinity finally emerged as the greatest contributors to the enrichment of Carnatic music. Thayagaraja sang in simple Telugu in praise of Rama who was his Ishta Devata. As he had a large number of disciples by his side always his compositions easily caught on and became popular.

The unique feature of his compositions is that every song was the result of an inner inspirational urge, having for its background a personal experience or anecdote. He covered almost the entire range of ragas and more than that he covered a raga in his composition from various angles leaving very little elbow room for future composers. This must have prompted Dikshitar to adopt the Dhrupad system for doubling the pace of the stanzas in between to give a new look to his compositions. Syama Shastry sang in praise of Kamakshi, the presiding deity at Kancheepuram. His compositions revealed his technical virtuosity in Carnatic music. While Thyagaraja's compositions can be learnt by listening, those of the other two in the trinity have to be learnt from a Guru.

There are also the Padams, Jhavelis and Kavadi Chindus to adorn the lighter side. The first two are the counterparts of the Thumris of the Hindustani style. They are erotic in content and have to be sung with emotion and a feeling for the lyrics.

Coming to the *Hindustani* idiom, the Dhrupad is the most ancient form of composition evolved by *Swami Haridas* and *Tansen*. The Swami lived some time at the end of the fifteenth century. He became a sanyasi belonging to the yogic lineage of the Andhra philosopher *Saint Nimbarka*. Bhakti was the keynote of his compositions. Tradition has it that *Baiju Bawra* and Tansen were his disciples. Tansen was born in the earlier part of the 16th century. Legend has it that he was the son of one Makarand Pande, and was named Ram Tanu and was christened Tanna Misra. He adorned the court of Akbar. He is credited with the creation of new ragas such as Miyan ki Malhar, Darbari Kannada and Miyaki Thodi. This idiom had gone into oblivion for long, but has now surfaced due to the efforts of the Daggar family. It has also caught on in the West in view of the robustness of the compositions.

The word *Khayal*, of Persian origin means 'Imagination'. Though its origin is attributed to Amir Khusro to whom all untraceable things are traced, consensus of opinion is that it came into prominence due to the efforts of Sultan Mohammed Sharqui in the 15th century and became acceptable as a classical form from the time of Sadanand Nyamet Khan (18th century). Unlike the Dhrupad, it is more delicate and romantic. For in structure and technique, it has certain freedom not found in Dhrupad.

A Khayal need not start with an Allaap so necessary in a Dhrupad. It depends on the genius of the singer to beautify it, by giving each note its proper environment, gamakas and an inner sense of melodic proportion. There have been great names in this regard like Balakrishna Bua (Gwalior Gharana), Ratha-

It was Purandaradasa who gave a launching pad to Thyagaraja, Syama Shastri and Muthuswami Dikshitar. This trinity finally emerged as the greatest contributors to the enrichment of Carnatic music.

mat Khan (Gwalior Gharana), Natthan Khan (Agra Gharana), Fayyaz Khan (Agra Rangeela Gharana), Alladia Khan (Jaipur Gharana), Bhaskar Bua (Agra, Gwalior, Jaipur Gharanas), Abdul Karim Khan (Kirana Gharana), Abdul Walid Khan (Kiran Gharana).

The *Thumri* is a very light form often bordering on the vulgarly sensuous. It is quite possibly associated with the Radha-Krishna Bhakti cult and harnessed in Kathak. It was very famous in the 19th century under the patronage of Wajid Ali Shah, who was interested in Bohemian pleasures. He was a generous patron whose court was adorned with dancers and music luminaries. *The Tarana* is a composition which does not use meaningful words. Its libretto is made of syllables like nadir, tome, tarana and yalali which are mnemonics of tabla and sitar strokes. Its parallel can be found in the Thillana of the Carnatic idiom.

The Ghazals, now very popular, are more famous for their erotic content. Mirza Ghalib can be called the father of this style and he did not mince words in describing its purpose. His philosophy was wine and women. It is now a commercial viable venture and draws far larger audiences than any other style of Hindustani music.

The above touches only the broad and fundamental aspects of the two main styles of Indian music.

INSTRUMENTS

The flute, nadaswaram, veena, gotuvadhyam, thavil, mridangam, and the plain drum are some of the ancient instruments of music in India. The sitar and the tabala were late comers. The sitar appears to have infiltrated from Persia and has assumed great popularity. Except the veena which is neatly fretted, all other instruments are negotiated by the method of trial and error. Their handling depends on the ingenuity and dexterity of the player. The flute and the nadaswaram as also the shehnai are wind instruments; the veena, gottuvadhyam, sitar and now the sarod from Afghanistan are stringed instruments. The drum varieties are percussion instruments.

One point must be clearly borne in mind, that Indian instrumental music is *basically vocal* in conception. This is more pronounced in Carnatic music where the artiste reproduces only the works of great masters on the instruments. The element of licence and improvisation occur in the Alapana or the free prelude. But there is a slight difference. In Hindustani music, instrumental scores do not rely on musical compositions with lyrics alone.

A musical phrasing based on a given rhythmic cycle is taken up for delineation and is processed in five stages namely, Aalaap (free prelude), Jhod and Jhala (chords), Gaat (the musical structure to be negotiated), the Vilambit (slow pace) and the Dhrut (fast tempo). Though there are separate musical scores for musical instruments, the emphasis is on the Gayaki Ang. That is, effort is made to be as faithful as possible to the vocal style. However, these days great maestros are trying to innovate an experiment on patterns unique to the instruments and bring out their potentialities.

Great masters are trying to innovate an experiment on patterns unique to the instruments and bring out their potentialities. Pandit Ravishankar, Ali Akbar Khan and Amjad Ali Khan are instances in point.

Pandit Ravishankar, Ali Akbar Khan and *Amjad Ali Khan* are instances in point. Ravishankar has gone a step further and specialised in orchestration also. Not only that, he has also tried to effect a fusion between Indian and Western music. He has rubbed shoulders with *the Beatles*, the *Pop* and *Jazz* tribes. Only posterity will be able to decide the value and potentiality of this experiment. On the percussion side also there has been a lot of effort to achieve a common platform for drums of all types. *Zakir Hussein*, the young and ebullient son of the illustrious Allah Rakha has made much progress in this direction. This effort clicked, as rhythm has universal appeal and brooks no regional or international prejudices.

The violin, a totally western instrument has also been Indianised and has become popular. It was in the 19th century that the brother of Muthuswamy Dikshitar, Baluswamy Dikshitar, introduced the violin to India. Since then it has caught on and become an indispensable adjunt to Indian music. In fact, it has eclipsed all other Indian instruments, in view of its portability, negotiability and range. It does not react wildly to the vagaries of weather, like its Indian counterparts and no wonder it is the most sought after instrument, especially in the South. Why south, one may ask.

In the North, the *Sarangi,* another stringed instrument; has been in vogue for centuries. But it has its inadequacies. It sports a plethora of vibrating strings which have to be returned for every change of raga in a concert. Added to this, it has to be operated by the knuckles instead of the fingertips. In the circumstances, there cannot be pin-point precision in notes in the speedier utterances. In inexpert hands, it will be an instrument of aggression. Years of practice only can enable an artiste to achieve perfection. But its beauty lies in its rich total timbre that can surpass even the voice. It can stir the heart in the Vilambit passages. So much so that in the Akashwaani it is featured when any dignitary passes away. In the recent past the violin has started catching on in the north also. *V. C. Jog* and *Smt. N. Rajam* are two outstanding artistes of this instrument.

Bharatanatyam is poetry in motion. It is a highly traditional and stylized dance form, crystallized in the cast-iron mould of Bhrata's technique that disallows new-fangled gimmicks.

There have been great maestros of violin and there still are in the south. Starting from *Govinda Swamy Pillai,* there have been stalwarts like *Dwaram Venkataswami Naidu, Mysore T. Chowdiah, Rajamanickam Pillai* and *Mayavaram Govindaraj Pillai.* Today the younger set has achieved astounding perfection and professionalism almost eclipsing the old-timers. *Lalgudi Jayaraman, M.S. Gopala Krishnan and V. V. Subramaniam* are a few instances. Special mention must be made of the outstanding achievements of the young violin maestro *Prof. L. Subramaniam* who has not only mastered the Carnatic idiom but also the Hindustani and Western styles. In the last mentioned he is on par with the top rankers in the West. *Zubin Mehta,* when asked about his impressions of the Indian violinists, observed. 'Oh yes, that young lad L. Subramaniam, is tops'.

The number of Carnatic musicians is too large to admit of detailed mention. But it would be worthwhile to mention a few great names. *Palghat Rama Bhagavatar, Ariyakudi Ramanuja Ayyangar, Mahanjapuram Vishwanatha Iyer, Madurai Mani Iyer, Chembai Vaidyanatha Bhagavatar, Palghat Mani Iyer, Palani Subbudu, Dakshinamoorthy Pillai.* But the sole credit for making Carnatic music popular in the West should go to *Smt. M. S. Subbalakshmi* who with her golden voice took the Western world by storm. More than that, she harnessed music as a vehicle of devotion and philanthropy. Indeed she realised the real purpose of music.

DANCE

Among the various dance forms in vogue in India are Bharatanatyam, Chakiarkoothu, Kathak, Kathakali, Krishnanattam, Kuchipudi, Manipuri, Mohiniattam, Odissi, Ottanthullal and Yakshagana. Besides, there are umpteen numbers of folk-dances peculiar to various regions and sub-cultures.

Bharata Natyam is poetry in motion. Tracing its hoary origins in the Natya Shastra, written by the great sage, Bharata, it is a highly traditional and stylized dance form. Crystallized in the cast-iron mould of Bharata's technique, this art form glassily disallows new-fangled innovations or gimmicks except in repertoire and forms of presentation. Emerging far back in the labyrnthine twists of ancient history (as information for the date conscious, 4000 B.C. is the ascribed date to the Natya Shastra), Bharatanatyam has been immortalized in successive generations, as much by the sinuous grace of great dancers as by the nimble fingers of renowned sculptors who have demonstrated the perfection of Bharata's technique in the flowing lines of temple sculptures.

Its *present* form was evolved by the Tanjore quartet namely Poniah Pillai and brothers. Earlier variedly known as Dasi Attam and Sadir, it was practised by Devadasis of the South Indian temples. It went into disrepute due to economic and social conditions and it was Rukmini Devi who gave it new life and respectability. Its format consists of Alarippu (invocation), Jathi Swaram (note combinations), Shabdam (notes and lyrics), Varnam (a combination of pure dance and abhinaya), lighter items like Padams and Javalis (all erotic) and finally the thillana (again pure dance). On par with Rukmini Devi, there was Bala Saraswati, the queen of Bharata Natyam.

Chakiarkoothu. This form is believed to have been introduced to Kerala by the early Aryan immigrants and is performed only by the members of the Chakiar caste. A highly orthodox type of entertainment, it can be strictly staged inside temples and witnessed by the Hindus of the higher castes. The theatre is known as Koothambalam. The story is recited in a quasi-dramatic style with emphasis on eloquent declarations with appropriately suggestive facial expressions and hand gestures. The only accompaniments are the cymbals and the drum known as the mizhavu, made of copper with a narrow mouth on which is stretched a piece of parchment.

Kathak, which has roots in Katha, evolved out of the popularisation of Radha-Krishna legend. Jaipur, Lucknow and Benaras became centres of its practice. From dance it changed to rhythm and erotics.

Folk Dances of India vary according to the region and have no specific grammar. They fit in with the scheme of festivals in each region.

Kathak. It has its root in Katha — story. A band of story tellers who were attached to temples in North India, narrated stories from epics. Later, they added mime and gesture to their recitation. The next stage in its evolution came in the 15th and 16th centuries A.D. with the popularisation of the Radha-Krishna legend. With the advent of the Muslim rule, it was taken out from the temples to the courts. Jaipur, Lucknow and Benaras became the centres. While Jaipur gave predominance to pure dance with emphasis on rhythm, the Lucknow one drifted into erotics.

Benaras also stuck to pure dance but it provided for the sensuous aspect by delineating episodes from the Radha-Krishna legend. The patron king of the Lucknow style was Wajid Ali Shah who spent extravagantly on art. The place of women in Kathak was of a different order. They were known as nachwalis who adorned the courts of the Mughals. Apart from this, they were used for entertainment of the pleasure seeking rulers and their fawning toadies. Eventually they came to be categorised as women of easy virtue. The Kathak dance goes through a regular format mostly concentrating on rhythm, variously called Tatkar, Paltas, Thoras, Amad and Parans.

Binda Din Maharaj, Kalkadin, Aachan Maharaj, Gopi Krishna and Birju Maharaj are but a few maestros in this line.

Kathakali is the most refined, the most scientific and elaborately defined dance form of Kerala. As it is obtained today it is not more than 300 years old, but its roots can be traced back farther past. It is a very exciting art form demanding not only complete control of practically every fibre of the artiste's body, but also intense sensitivity of emotion.

The stories for *attakathas* (the verse text for a kathakali piece) are selected from epics and mythologies and are written in a highly sanskritised verse form in Malayalam. The actor does not speak, but expresses himself through highly complicated and scientifically ordained *mudras* and steps, closely following the text being sung from the background of the stage.

The domain of kathakali is peopled by superhumans, gods and demons, and animals who are presented in a larger than life format. What strikes the spectator first and most is the splendour of the costumes, ornaments, and facial make-up which transform the actor-dancer into a type rather than a particular character. A character can be identified by the colour it sports. A green-painted face stands for nobility, honour, valour and such higher qualities.

Mythological heroes like the Pandavas, King Nala and divine personages like Krishna and Indra wear this make-up. In characters who wear the *katti* make-up, the green on the face is broken by a red patch resembling an upward twirling moustache. This make-up is symbolic of high-born anti-heroes, who are demonic but worthy foes to the heroes. Examples are characters like Duryodhana, Ravana and so on.

Another character classification called *tadi* (beard) includes wearers of red, white and black beards — red worn by vicious and savage villains like Dussasana, Bakasura and so on, white by the pious giant monkey Hanuman, and black worn by aboriginal hunters and forest dwellers. The category called *kari* (black) has characters whose faces are painted in lamp black, mostly ogresses like Shurpanakha and Hidimba. In complete contrast is *minukku,* in which the face is painted in delicate flesh tones with yellow and red powder. They are the noble women, queens, princesses, mostly heroines like Damayanti, Sita and others.

The vocabulary for the performer is only *bastamudras* (stylised hand gestures), facial gestures and *nritta*. Together with the exotic quality of the spectacle and the intricate *abbinaya* system and the rhetorical text rendered in classical style to the accompaniment of drums, a kathakali performance transports a spectator to an unworldly atmosphere peopled by gods, demons and other superhumans.

It takes years for a novice to graduate into an actor. Seven years of full-time practice under a meticulous teacher is the minimum called for. But to make an accomplished actor able to portray versatility, it takes many more.

Kathakali had its origins in the courts of the kings of Kerala. It is considered to be a highly synthetic art form, combining in itself the rudiments of its earlier forms like Krishnanattam and Ramanattam plus a highly scientific dance drama form. It is not folk, but highly classical, though not very old

Most of the attakathas were written in the last century, but new attakathas are also appearing, though the standards are still kept undisturbed. There is plenty of innovation going on, yet all within the framework of the basic format One of the noteworthy innova

Chitra Viswesaran, exponent of 'Bharata Natya' tions was *rendering* Goethe's German classic *Faust* into an attakatha.

Poet Vallathol can be said to be the fountainhead of all inspiration in regard to today's kathakali. He authored many a script. 'Kerala Kalamandalam' at Cheruthuruthy on the bank of Bharatapuzha is the premier insitution in this regard.

Koodiyattam. This is always a long drawn out affair and may take anywhere from a few days to a number of weeks. It is both entertainment and edification. The Vidhushaka rules the roost. He moralises and his armoury — satire and inneundo — has some times no relevance to the theme of the play.

Krishnanattam. It is intended for presentation on eight successive nights to unfold the entire story of Lord Krishna; the style is almost akin to Kathakali.

Kuchipudi. It is the dance drama of Andhra Pradesh. It is the corresponding style of the Bhagavata Mela Nataka of Tamil Nadu. Except that the emphasis is on the animation, the grammar is derived from the Natya Shastra and in all other aspects it is akin to Bharata Natyam.

Tirtha Narayana and Siddendra Yogi evolved this style. Kuchelapuram in Andhra Pradesh was the originating centre for this style. Hence the name Kuchipudi. It was a male prerogative. In recent years women have taken to it but it is mostly solo dance that they perform. To this extent the concept has been watered down. Like Kathakali it used to be a week-long affair. Vedantham Satyanarayana is the doyen of this style and he has carved out a niche for himself in portraying the role of the haughty, beautiful and vain-glorious Satyabhama. Vembhati China-Satyam, however, is the most popular guru today.

Manipuri. From the 15th to the 18th centuries, Vaishnavism came to be adopted in Manipur and this ushered a new era in the development of this style. For Manipuris, dance has been so inextricably woven into their pattern of life. The dance form is mostly ritualistic. It has still preserved the dance drama technique which draws heavily from the rich lore of legend and mythology. Costumes are colourful and the music has a quaint old-world charm. The numbers presented are Lai Haraoba and Rasa Leela. The former deals with the creation of the world and the latter is on Krishna Leela.

For Manipuris, dance has been inextricably woven into their pattern of life. The dance form is mostly ritualistic. Its dance-drama technique draws heavily from the rich lore of legend and mythology.

Drums play an important part and the Poonang Cholom item is a must in any performance. The Kartar Cholom danced with cymbals is another exciting item.

Mohiniyattam is also the heir of Devadasi dance heritage like Bharatanatyam, Kuchipudi, Odissi. The word 'Mohnini' literally means a maiden who exerts desire or steals the heart of the onlooker. There is the well-known story of Lord Vishnu takingon the guise of a 'Mohini' to enthral people, both in connection with the churning of the milk-ocean and with the episode of the slaying of Bhasmasura. Thus it is thought that Vaishnava devotees gave the name of Mohiniyattam to this dance form.

In format, this is similar to Bharatanatyam. The movements are graceful like Odissi and the costumes sober and attractive. It is essentially a solo dance.

The first reference to Mohiniyattam is found in 'Vyavaharamala', composed by Mazhamangalam Narayanan Nambudiri, assigned to the 16th century A.D.

In the 19th century Swathi Tirunal, the king of erstwhile Travancore, did much to encourage and stabilize this art-form. It was Poet Vallathol who again revived it and gave it a status in modern times through Kerala Kalamandalam, which he founded in 1930. Kalamandalam Kalyaniamma, the first dance teacher of Kalamandalam, was instrumental in resuscitating this ancient art form. It is slowly trying to acquire an identity and classical status.

Odissi. This is also based on the Natya Shastra and the earliest evidence, we have of the existence of the art of dance in Orissa is during the 2nd century B.C. when the Jain King Karavela ruled. Himself an expert dancer and musician, he arranged a performance of Thandava and Adhinaya.

In the early 17th century, a class of boys known as Gotipuas, came into being. They dressed as dancing girls and danced in the temples. Grace is its uniqueness and the most important elements are the Bhangis and Karanas. The Bhangis are the basis poses and the Karanas the basic dance-units.

The format consists of Bhumi Pranam, Batu, Pallavi and lighter items like the Ashtapadi ending in moksha approximating to the Thillana of the South. It has gained great popularity today and it is so to the credit of Smt. Samyukta Panigrahi to have made it acquire universal appreciation. Today Kelucharan Mahapatra has become a name to reckon with as a preeminent guru.

Ottan Thullal. It is performed solo and because of its ready mass appeal, it is also known as the poor man's Kathakali. Kunjan Nambiar evolved it and brought out the social conditions of his time, the distinctions of class and the weaknesses and whims of the rich and the great. The dialogue is in simple Malayalam and therefore ensures mass appeal.

Yaksha Gana. This belongs to Karnataka and has a rural origin. It is an admixture of dance and drama. Its heart lies in 'Gana' meaning music. It is about 400 years old. The language is Kannada and the themes are based on Hindu epics. The costumes are almost akin to the Kathakali ones and the style seems to have drawn inspiration from Kathakali. As prescribed in the Natya Shastra, it has the Suthra Dhara (conductor) and the Vidhushaka (the jester).

INDIAN PAINTING, SCULPTURE

Despite great gaps in our knowledge of continuities in history, the story of Indian painting has to begin with the art of primitive man which has survived in rock shelters and caves in places like Hoshangabad, Mirzapur, Bhimbetka.

Stone Age paintings belonging to the Magdalenian phase (15000 B.C.) have been discovered elsewhere. The chances are that the paintings in India do not go that far back. But it is accepted that the primitive intellect and vision can survive for long when communities are isolated. Thus these paintings share the vivid realism of primitive art that has been discovered in many places like Altamira in Spain and Lascaux in France. The silhouette effect creates a dramatic shadow-play of scenes of hunt, the open mouth of the wounded boar expresses all its pain.

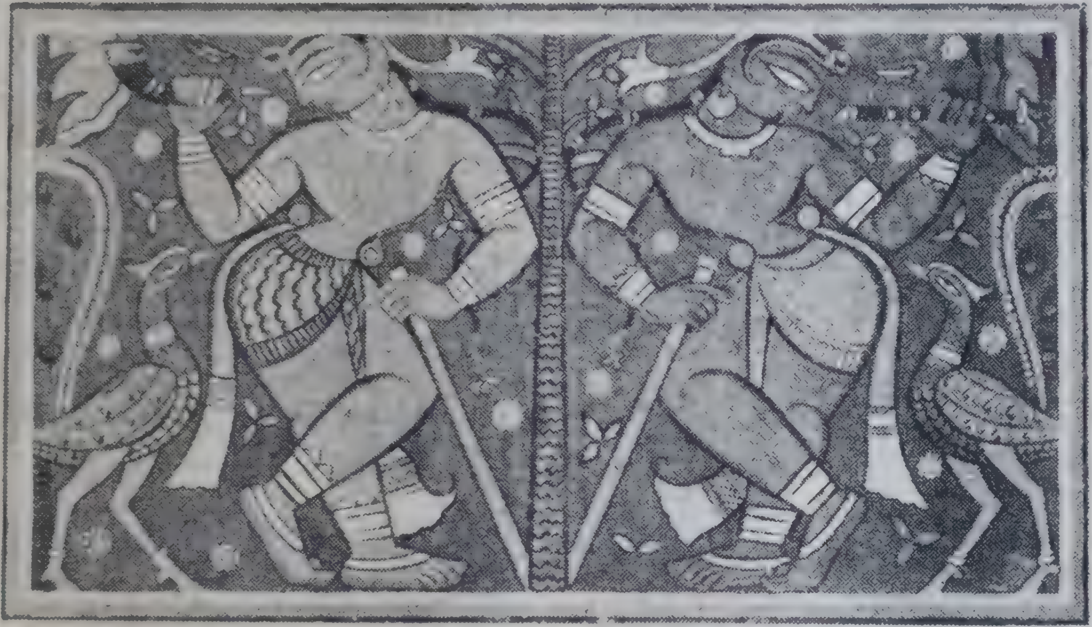
The epoch of the Indus Valley Civilization (3000 B.C. — 1500 B.C.) was one of elegant urban culture, but since the superstructures have not survived, no murals have come down to us. But in the case of the Aegean culture of ancient Crete we find close similarity between mural painting and the painting on pottery. The Indus epoch also may have had extensive mural painting, for the painting on the pottery that has come down to us in abundance shows maturity and range, from vigorous realism through rhythmic stylization to strikingly expressive abstraction.

The earliest paintings of Ajanta may date back to the first century B.C. and the latest to the eighth century. The spirit of the compassionate Buddha is their inspiration.

Perhaps Hinayana or early Buddhism did not understand that spirit correctly, for it remembered only the transience of things, the pervasiveness of pain. But, though Siddhartha had wanted to take his infant son with him when he left the palace, he could not because the mother's hand lay protectingly over the child even in her sleep. He remembered this after his enlightenment and told all to have the same kind of protective regard for every living thing. He rejected Nirvana for himself and was born again and again to help humanity in its travails, not only in many human roles, but as a deer, an elephant, a swan.

The Jataka tales elaborated the vicissitudes of these incarnations and the Ajantan artists painted them in sinuous line and sensitive colour. City, countryside and forest, men and women of every type, fauna and flora, all are mentioned in these murals.

Since the brush and the chisel accompanied the message of peace when Buddhism radiated to the rest of Asia, Ajanta became a fountainhead of Asian painting and murals



'Krishna and Balarama' by Jamini Roy

Centenary of Jamini Roy

Jamini Roy whose birth centenary was celebrated on April 15th 1987 was a living legend in modern Indian art. A student of Abanindra Nath Tagore he revived folk art in Indian tradition and worked in earthy colours viz red, ochre, vermilion, green and grey.

His scenes are typically rural and his feelings for animals and birds are reflected in his paintings. He summed up his philosophy as "Art is work of experience, of stress and strain, wrestling with problems, intellectual and physical." He died on April 24, 1972.

With the clear stamp of its style. This can be seen in Sigiriya in Sri Lanka, Bamiyan in 'Afganistan , in many places along the old silk route in China, in Korea and in Horiyuji in Japan.

In India itself the mural tradition continued, though with less momentum, in Chalukyan Badami (sixth century), Pallava Panamalai (seventh century), Pandyan Sittannavasal (ninth century), Chola Tanjore (twelfth century), Lepakshi of Vijayanagar (sixteenth century) and the murals of Kerala of various dates reaching to the middle of the nineteenth century.

Meanwhile, painting had come down from the extended mural surface to the miniature dimensions of the manuscript, originally on palm-leaf, later on paper. The miniatures of Pala period Bengal (tenth and eleventh centuries) conserve the sensuous line of Ajanta. But there is a rapid decline now and the line becomes brittle and angular.

It is this style that spread to western India and is seen in numerous illuminated manuscripts, the bulk of them being Jain texts, of the period from the twelfth to the fifteenth centuries. But a wind of change begins to blow during the latter half of the fifteenth century and the first quarter of the sixteenth.

In response to the lyricism of poems like the *Vasanta Vilasa* (Dalliance in Spring), Bilhana's *Chaura Panchasika* (Fifty Stanzas on Stolen Love) and *Laur-Chanda* (the Romance of Lorik and Chanda), line again becomes supple, colour lustrous. The Indian miniature stabilizes a fine pictorial style even before the advent of the Moghuls.

Though the imperial court of Akbar was headed by artists from Persia, Moghul painting is not a provincial school of Persian painting. The latter retreats into a paradisiacal world of romance, while Akbar is interested in contemporaneity, in history in the making. The organization of the studio and its working also brought about a rapid indigenisation of the alien idiom.

Akbar recruited a very large number of Indian artists. Each painting was most often a co-operative effort of Indian and Persian artists, one man doing the drawing, another the colouring, a third the details. The indigenisation received further momentum when Akbar commissioned the translation and illustration of Indian texts like the *Ramayana* and the *Mahabharata*.

It is mostly artists trained in the Moghul atelier who became the court painters of the Rajput princes. But while Moghul painting was elitist, reflecting imperial pomp and circumstance, Rajput painting presented in line and colour the great myths and legends of the land, the story of Rama, of Krishna, of the *Bhagavata* and the *Gita Govinda*. Of the many states in the plains or Rajasthan, two need special mention.

The style of Kotah painting anticipates by nearly eighty years the primitive vision and virility of European fauvists like Douanier Rousseau. That of Kishangarh painting manages the perfect pictorialisation of the poetry of the Radah-Krishna story.

Mughul painting was elitist reflecting imperial form and circumstances. Rajput painting presented in line and colour the great myths and legends of the story of Rama, of Krisha and of the 'Bhagavata'.

In the small principalities of the Himalayan valleys set up by intrepid Rajput warriors from the plains, many centres came up of which Basohli is unique for its intensity of expression, Kulu for its closeness to the folk style and Kangra for both its romanticism and large output.

A decline followed the close of the Rajput phase. With the strong presence of the west in the British era, western academism became popular, mostly self-taught in the case of a pioneer like Ravi Varma, through institutional training in the case of others. The revivalist school, headed by Abanindranath Tagore, was nationalist in inspiration, but its pictorial achievement was weak and sentimental.

The four pioneers of modern painting in India are Gaganendranath Tagore who tried out every technique and style, Amrita Shergil who integrated the pictorial idiom of the west and an Indian vision, Jamini Roy who discovered the virility of the folk tradition and modulated it in many ways and Rabindranath

Tagore who demanded for paintings music's autonomy and independence from factuality and thus gave a charter for free variations on naturalism, abstraction and expressionism.

SCULPTURE

The story of Indian sculpture begins with the epoch of the Indus Valley Civilization and it is already a startlingly mature achievement. The figurine of the dancing girl that has come down to us testifies to good knowledge of bronze casting, indicates the fascination of the feminine figure that will endure throughout, points to the close relation between sculpture and dance in the Indian tradition.

Terracotta is the medium for objects used in ritual like mother goddess figurines as well as for recreation like toys of a great variety. Despite their small size stone sculpture achieves monumentalism and animals like bulls represented in the small steatite seals have a vibrant realism.

The dispersal of Persian craftsmen when the Achaemenid empire was overrun by the Greeks in the fourth century B.C. may have contributed to the monumental stylization of the figure of the lions in the Asokan pillar that has been adopted as India's national emblem. But the Mauryan age also evolved a gentler style in the bull of the Rampurva pillar and the sympathetic treatment of animals continues throughout in Indian sculpture. The Yakshas and the Yakshis (spirits of hills and trees) are at first rather rigid figures but the feminine figure soon becomes sensuously refined, even though remaining ample, in the Didarganj Yakshi.

The Sungas who replaced the Mauryas in the second century B.C. further refined the Yakshi figure with elaborately carved costume and jewellery, linked tree and woman through the nexus of fertility which symbolism was poetically brought out in the compositions and developed the skill for fluent narration in running friezes of low-relief or deep-relief sculpture.

The Satavahanas (second century B.C. to second century A.D.) further developed these traditions. The dryads of Sanchi are the most lissome representations of the type. Narrative sculpture at Amaravati brilliantly solved the problem of composition in awkward shapes like that of the medallion.

In the north-west regions now no longer in India, in the Indo-Greek kingdoms that emerged in the wake of the invasion under Alexander, the plastic vision of ancient Europe combined with Buddhist spirituality to create the art of Gandhara. This region became part of the vast Kushan empire of Kanishka (second century A.D.) which stretched from the Oxus to the Ganges. But the Kushans mostly resided at Mathura and the art of this epoch was in the main a prolongation of the earlier traditions.

However, it was an age of highly urbanised and relaxed mores and the Yakshi figure loses its links with the woods, becomes a self-consciously seductive damsel of the city. Scenes of revelry with the wine flowing freely are represented in sculpture. Feminine apparel begins its fine adventure of ambivalence, revealing while pretending to conceal for the Mathura nymph wears so transparent a fabric that she appears nude.

The age of the imperial Guptas (300-600) achieved the classic stabilization of the icon of the Buddha, represented as seated or standing, and with various symbolic gestures of the hands. The circular medallion that had decorated the railings in Sungan and Kushan times evolves here to the splendid aureole or halo of the Buddha. The transparent apparel of the Kushan epoch falls here in fine folds that trace flowing rhythmic patterns all over the figure. The visage with its delicacy of moulding achieves a rapt serenity of expression, a quality of inward musing, realised never before.

The Gupta creation of the classical icon of the Buddha is a landmark in the art of Asia for, like the Padmapani of Ajanta, it radiated to many lands. This age also created magnificent sculpture on Hindu themes like the incarnations of Vishnu in the late fifth century temple

Terracotta is the medium for objects used in rituals like mother goddess figurines as well as for recreation like toys of a great variety. Despite their small size, stone sculpture achieves monumentalism.

of Deogarh and the powerful representation of the boar (Varsha) incarnation salvaging the earth, hewn from the rock at Udayagiri.

The Vakatakas of the Deccan were the contemporaries of the Guptas and under their patronage fine sculpture came up in abundance, mostly Buddhist at Ajanta, Hindu at Ellora. The achievement has great range, from the lightness of flying figures and the elegant rhythmic balance of dancing groups such as the one at Aurangabad to the majesty and wealth of symbolic meaning of the figure Mahesa at Elephanta.

The Western Chalukyas continued these trends, creating floating figures and dancing Sivas at Badami, Aihole and Pattadakkal. The Eastern Chalukyas also created some fine sculptures of dance in the temples of Vijayawada region.

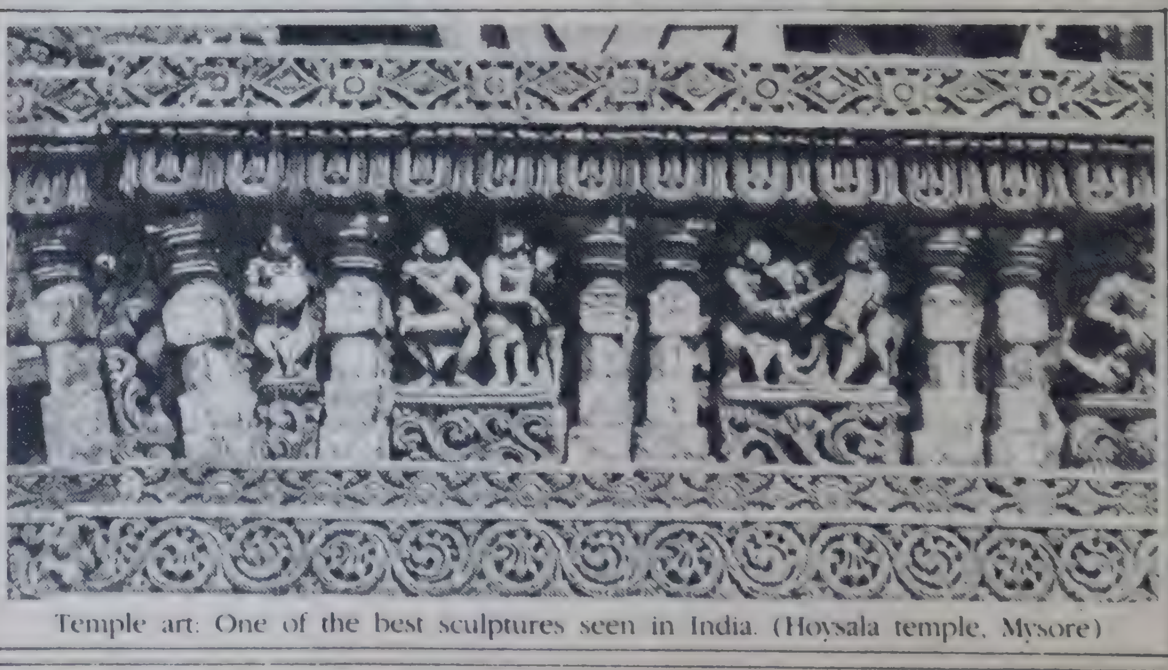
In the eighth century, the Rashtrakutas carved a whole hill of rock at Ellora to simulate a structural temple and peopled it with sculpture on the exploits of Siva which share the turbulent power of their unique architectural achievement. The Gujara-Pratiharas who were their contemporaries evolved a less turbulent though still monumental style in such creations as the cosmic form of Vishnu, created poetically sensitive sculptures like the one showing the wedding of Siva and Parvati and contributed one of the loveliest dryads in the Indian tradition.

The Gahadvalas continued this tradition and the twelfth-century head from Rajorgarh is probably the best Indian sculpture for the most elegant representation of feminine coiffure. This trend of exquisite feminine figuration climaxed in the epoch of the Chandellas (tenth to twelfth centuries). The eroticism of Khajuraho sculptures has unfortunately attracted undue attention all over the world.

But far more sensitive in modelling and poetic in sensibility are the representations of woman in her various moods of longing, expectation, reverie. Eroticism is found in the sculptures of Konarak and Bhuvaneshwar of the epoch of the Eastern Gangas (thirteenth century) too. But here again the poetic and romantic figurations of women are more sensitive.

Moving further south, the great achievement of the Pallavas (eighth century) was the gigantic tableau at Mahabalipuram where a whole rock-face has been carved into a representation of the descent of the Ganges and the teeming animal and human life on its banks. There are some exceptionally fine and deeply sympathetic studies of animal life here.

Siva is the towering figure in Chola sculpture (eleventh and twelfth centuries) in stone too besides bronze. But it is the work in bronze, especially the Nataraja or dancing Siva, that has become world famous, and deservedly so. Matching profound concept with perfect



Temple art: One of the best sculptures seen in India. (Hoysala temple, Mysore) plastic form, this great iconic creation sees the incessant change of the world, the gyration of the electron as well as the galaxy, as ordered process, assures man that it is a benign order.

Under the Hoysalas (twelfth century) the Karnataka region created a sculpture where the soft chloristic schist used tempted rather excessive detail and ornamentation. In the sixteenth century, Vijayanagar favoured a sculpture that reflected imperial pomp in elephant processions, cavalcades, marching soldiery.

Stone sculpture influenced by the Pallava tradition and bronzes influenced by the Chola style were produced in Kerala, but its unique achievement is in sculpture in wood.

Exposed to stimuli from all over the world, Indian sculptors today are experimenting in all styles, using new materials like steel and aluminium, fibreglass and even fibre. But the most significant trend seems to be the one which seeks to recover the iconic quality, the power to stir the impulses of awe and adoration which are humanistically the most valuable strains of the Indian sculptural heredity.

LANDMARKS OF HISTORY

The first wave of Aryan immigration into India began in 1500 B.C. They settled in the Punjab. Composition of the *Rig Veda* was the high watermark of the Vedic Age.

B.C. 1000: Aryans expand into the valley of the Ganga: Composition of the *Brahmanas*. **900:** Mahabharata War. **800:** Aryans penetrate into Bengal: Composition of the *Mahabharata*: First version of *Ramayana*: Beginning of the Epic Age. **550:** Composition of the *Upanishads*.

544 (?): Traditional Date of Buddha's Nirvana. **527 (?):** Accession of Darius I in Persia. **518:** Darius sends Scylax on a naval expedition down the Indus: Persian conquest of north west India: Formation of a Persian satrapy in India. **500:** Aryans in the South and Ceylon. **326:** Alexander invades India. 323: Death of Alexander.

321: Chandragupta unseats the Nanda dynasty in Pataliputra and founds the Maurya dynasty. Kautilya, the Chief Minister of Chandragupta, writes *Arthasastra* (Science of Government). **272-232:** Reign of Asoka. **185:** Pushyamitra, the Mauryan General overthrows the last Mauryan Emperor Brihadratha and founds the Sanga dynasty.

145: Chola king Erata conquers Ceylon. Kharavela builds up an empire in Kalinga. **58:** The Krita-Malava-Vikrama era. **30:** Satavahana dynasty in the Deccan. Pandyan Empire in the far South. **26:** A Pandyan king sends an ambassador to Rome. Chera kings in Kerala.

A.D. 40: The Sakas or Scythians in power in the Indus Valley and Western India. **52:** Parthian King Gondopharnes in North West India. St. Thomas begins preaching in India. **78:** Saka Era begins. **98-117:** Kanishka, the Scythian King. **320:** Chandragupta I establishes the Gupta dynasty—Gupta Era begins. **360:** Samudra Gupta conquers the whole of northern India and much of the Deccan.

380-413: Chandragupta Vikramaditya-The Golden Age of the Gupta-Literary Renaissance-Kalidasa and other poets. Renewal of Hinduism. **606:** Accession of Harsha Vardhana. **609:** Rise of the Chalukyas. **622:** Era of the Hejira begins. **711:** Invasion of Sind by Muhammad Bin Kassim. **753:** Rise of the Rashtrakuta Empire. **892:** Rise of the Eastern Chalukyas. **985:** The Chola Dynasty—Rajaraja the Great.

1026: Sack of Somnath by Mahmud of Ghazni. **1191:** Prithvi Raj Chauhan, King of Delhi, routs Muhammad Ghori—the first battle of Tarain. **1192:** Muhammad Ghori defeats Prithvi Raj—second battle of Tarain. **1206:** Qutbuddin Aybek establishes the Slave dynasty at Delhi. **1221:** Mongol invasion under Genghis Khan. **1232:** Foundation of the Qutub Minar.

1298: Marco Polo visits India. **1290:** Jalaludin Firuz Khilji establishes the Khilji dynasty at Delhi. **1320:** Ghiyasuddin Tughluk founds the Tughluk dynasty at Delhi. **1333:** Ibn Batutah arrives in India. **1336:** Founding of Vijayanagar (Deccan). **1398:** Timur invades India. **1424:** Rise of the Bahmani dynasty (Deccan). **1451:** The Lodi dynasty-Bahlul Lodi ascends the throne of Delhi. **1489:** Adil Shah dynasty at Bijapur. **1490:** Nizam Shahi dynasty at Ahmadnagar.

1498: Vasco da Gama lands at Calicut. **1510:**

The Ganga—the River Ma

The Ganga is the river of India, beloved of her people, round which are intertwined her racial memories, her hopes and her fears, her songs of triumph, her victories and her defeats. She has been the symbol of India's age-long culture and civilizations, ever changing, ever flowing yet ever the same Ganga— Jawaharlal Nehru.

Thus for most of us in India The Ganga is more than a river. It is a myth, a legend and a way of life. From ancient times agriculture flourished on its banks, cities were founded and battles were fought, won or lost. This 2500 km holy waterway is an ancient heritage to most Indians and especially to those who live on its banks.

The mighty Ganga starts as a small stream high in the Himalayas from the melting Gangotri glacier. It comes tumbling over boulders and rocks and appears in the ice cave Gaumukh. There the river is known as the Bhagirathi. *It comes tumbling down through woodlands of honey suckle and wild rhododendron and meets the* Alakananda *at Devaprayag. Thus a great river is born and from there the river is known as the Ganga. It crosses the fertile northern plains nourishing the land spilling over during monsoon and deposting layers of silt. At Allahabad it is joined by the* Jumuna*—a mighty river in itself and also the Hindus believe it the heavenly* Saraswati. *This trijunction known as the* Sangam *is the holiest place in India for Hindus.*

The river flows placidly through Banares—a City of silks and brocades, of Hindu learning and Muslim art, of temples and bathing ghats, of pilgrims chanting the Gayatri mantra and of burning ghats. From Banares it journeys through Bihar joined by the Gogra, *the* Son *and the* Gandak *irrigating vast fields of rice. Over Patna the river widens dramatically and ambles on into Bangladesh where it is again joined by the* Brahmaputra *and* Meghna. *The mighty river divides and subdivides into multiple channels and flows into the Bay of Bengal as the mouth of the Ganga. The branch that flows through Calcutta is known as the* Hooghly *and it is Calcutta's life-line to the sea. It unravels in a wild tropical forest known as the* Sunderbans, *the home of tigers and crocodiles.*

This is the Ganga—The sacred river of India, Ganga ma *to Hindu devotees, the river of healing and eternal bliss to millions of Indians.*

Portuguese capture Goa—Albuquerque Governor. **1518:** Kutab Shahi dynasty at Golconda. **1526:** First Battle of Panipat—Babur defeats the Lodis—Establishment of the Mughal dynasty. **1530:** Humayun succeeds Babur. **1538:** Death of Guru Nanak. **1539:** Sher Shah defeats Humayun and becomes emperor of Delhi. **1555:** Humayun recovers the Delhi throne from Eslam Shah, successor of Sher Shah.

1556: Death of Humayun—Accession of Akbar. Akbar defeats Hemu at the second battle of Panipat. **1564:** Akbar abolishes 'Jiziya' or poll tax on Hindus. **1565:** Battle of Talikota—An alliance of Muslim rulers in Deccan defeats and destroys Vijayanagar Empire. **1571:** Foundation of Fatehpur Sikri by Akbar. **1576:** Battle of Haldighat. Akbar defeats Rana Pratap Singh of Mewar.

1582: Akbar proclaims *Din Ilahi* or Divine Faith—an attempt at synthesising Hinduism and Islam. **1597:** Akbar completes his conquests. Death of Rana Pratap.

1600: English East India Company: **1602:** Netherlands East India Company. **1605:** Death of Akbar and the accession of Jehangir. **1609:** The Dutch open a factory at Pulicat. **1611:** The English establish a factory at Masulipatam. **1627:** Death of Jehangir—Accession of Shah Jehan—Birth of Shivaji.

1631: Death of Shah Jehan's wife Mumtaz Mahal—The building of the Taj Mahal. **1639:** Foundation of Fort St. George at Madras by the English. **1658:** Aurangzeb becomes emperor of Delhi. **1664:** Shivaji assumes royal title. **1679:** Aurangzeb re-imposes Jiziya. **1707:** Death of Aurangzeb. **1720:** Accession of Baji Rao Peshwa at Poona.

1739: Nadir Shah of Persia conquers Delhi. **1742:** Mahratas invade Bengal—Dupleix, French Governor of Pondicherry. **1748:** First Anglo-French war. **1757:** Battle of Plassey—The English defeat Siraja Daulah—Mir Jafar, Nawab of Bengal. **1760:** Battle of Wandiwash—The English defeat the French. **1761:** Third Battle of Panipat—Ahmed Shah Abdali. the ruler of Afghanistan, defeats the Mahratas—Mahrata imperialism checked.

1764: Battle of Buxar—the English defeat Mir Kasim. **1765:** The English get Diwani Rights in Bengal, Bihar and Orissa—Clive, Governor in Bengal. **1766:** The English secure Northern Circars in the Carnatic.

1767-69: First Mysore war—the British conclude a humiliating peace with Hyder Ali of Mysore. **1772:** Warren Hastings, Governor of Bengal. **1773:** The Regulating Act passed by the British Parliament. **1775-82:** First Anglo Mahrata war. The Treaty of Salbai. **1780-84:** The Second Mysore War. The English defeat Hyder Ali. **1784:** Pitt's India Act.

1790-92: Third Mysore War between the English and Tipu—An indecisive war concluded by the Treaty of Seringapatam. **1793:** Permanent Settlement of Bengal. **1798:** Marquess of Wellesley becomes Governor General of India. **1799:** Fourth Mysore War—The English defeat Tipu—Death of Tipu—Partition of Mysore. **1801:** The English annex the Carnatic. **1803-5:** Second Anglo-Mahrata War. British under Sir Arthur Wellesley inflict a crushing defeat on the Mahratas at Assaye. **1817-19:** Mahratas finally curshed by British forces. **1828:** Lord William Bentick becomes Governor General—Era of social reforms—Prohibition of Sati (1829). Suppression of Thugs (1837).

1881: Rise of the Sikhs under Ranjit Singh. **1845-46:** First Anglo-Sikh War—Defeat of the Sikhs. **1848:** Lord Dalhousie becomes Governor General. **1848-49:** Second Anglo-Sikh War—Sikhs defeated in battle (1848). The British annex Punjab.

1853: First Indian Railway opened from Bombay to Thana. **1857-58:** First War of Indian Independence. **1858:** British Crown takes over the Indian Government—Queen Victoria's Proclamation. **1861:** Indian Councils Act—Indian High Courts Act—Indian Penal Code. **1868:** Railway opened from Ambala to Delhi. **1877:** Delhi Durbar—The Queen of England proclaimed Empress of India.

1878: Vernacular Press Act. **1881:** Factory Act—Rendition of Mysore—Mysore State restored to its original ruler.

1885: First meeting of the Indian National Congress. **1892:** Indian Councils Act to regulate Indian administration. **1899:** Lord Curzon becomes Governor General and Viceroy. **1905:** First Partition of Bengal. **1906:** Formation of the Muslim League. **1908:** Newspapers Act. **1909:** Minto-Morley Reforms. **1911:** King George V and Queen Mary hold a Durbar in Delhi. Partition of Bengal modified to create the Presidency of Bengal. The imperial capital shifted from Calcutta to Delhi.

1914: The First World War begins. **1915:**

Indian Shoe's Big Leap

Ajit Kumar Sen, a senior Indian official, says that in the 1950s, when India began its first exports of shoes to the Soviet Union, neither side insisted on high standards of workmanship.

"In fact, I remember the Russians said they didn't mind if we put cement in the toecap of the shoe to stiffen it," said Mr. Sen, who is an executive director of the government-run State Trading Corp., India's largest trading company.

The Indians, he said with a smile, did precisely that, for "a decade, I think, and they didn't bother them at all."

These days, Indian shoemakers are becoming increasingly attractive to large Western footwear and leather companies with higher standards of quality. Several big Western companies are here to set up working agreements and take advangage of low-cost labour and low overhead.

Although the Soviet Union remains the country's biggest purchaser of leather products, Indian manufacturers have expanded their sales, with nearly half the total exports going to the United States, Britain, Portugal, Italy and other Western countries. The other half remains solidly with the Communist bloc.

From $230 million worth of leather exports in 1981, the figure soared to nearly $700 million in 1986, representing one of the fastest-growing businesses in the nation.

The surge in sales abroad followed a series of steps by the government to cut import procedures and customes duties as well as offer cash incentives for shoe uppers and completed shoes. Leather manufacturers say that a ban on the export of raw hides and skins has also helped the growth of the domestic industry.

Another factor is a decision to allow large enterprises to enter the leather market, an area that was once exclusively the domain of small and medium-size manufacturers.

Industrialists say that the decline of the leather industry in the West, caused by pollution problems, high labour costs and running expenses, will help developing countries like India win a bigger share of the international market.

This trend was also helped, according to trade officials, by Brazil's brief withdrawal from the world leather market in the early 1980s as it wrestled with domestic economic problems. Those were the years that Indian leather exports began to boom. More than 100 leather companies have sprung up in and around New Delhi in the past five years. (New York Times)

Defence of India Act. **1918:** World War ends. **1919:** Rowlatt Act intended to perpetuate the extraordinary powers enjoyed by the Government during the war provokes country-wide protests. The massacre at Jalianwallabhag. Ali brothers and Maulana Abul Kalam Azad start the Khilafat movement (for restoring the Turkish Khalifate) with Gandhiji's support. Perfect Hindu-Muslim accord. Montague-Chelmsford Reforms offer limited provincial autonomy to Indians.

1920: Congress okays non-cooperation movement. Students leave colleges, lawyers leave practice. Bonfire of British clothes, etc. to show popular dissatisfaction with the reforms. **1921:** Moplah (Mulsim) rebellion in Malabar. Visit of the Prince of Wales. Nation-wide hartal. Census of India.

1922: Civil Disobedience Movement. Congress makes Gandhiji sole leader of Bardoli satyagraha. Outburst of violence at Chauri Chaura. Gandhjiji suspends movement on this account.

1923: Swarajya party started by C. R. Das and Motilal Nehru. Swarajists propose to enter the Councils and wreck the government from within. Khilafat movement fizzles out as Kemal Pasha declares Turkey a secular state. Hindu-Muslim riots. **1925:** Death of C. R. Das. **1926:** Lord Reading expounds to the Nizam what paramountcy implies. Royal Commission on Agriculture. Factories Act. **1927:** Indian Navy

Act. Simon Commission appointed. **1928:** Simon Commission comes to India. Boycott by all parties. All Parties' Conference. Muslim leaders leave the Conference.

1929: Lord Irwin, Viceroy of India, promises Dominion Status for India. Lahore Session of the Congress asks for independence. On the midnight of Dec. 31, Pandit Jawaharlal Nehru, President of the Congress, hoists the National Flag at Lahore.

1930: Jan. 26 observed as Independence Day all over India. Civil Disobedience Movement continues. Gandhiji goes walking to Dandi—Salt Satyagraha. Repression let loose by the government. First Round Table Conference.

1931: Gandhi-Irwin Pact. Second Round Table Conference. Census of India. **1932:** Suppression of Congress movement. Third Round Table Conference. The Communal Award. Poona Pact. **1933:** White Paper on Indian reforms. **1934:** Civil Disobedience Movement called off. **1935:** Government of India Act.

1936: Death of King George V. Accession and abdication of Edward VIII, Accession of George VI. **1937:** Inauguration of Provincial Autonomy. Congress Ministries formed in a majority of the provinces.

1938: Second World War begins. Also Resignation of Congress Ministries. Political deadlock in India. **1941:** Japan enters the war. Attack on Pearl Harbour.

1942: Singapore falls to Japan. Japan occupies Rangoon. The British evacuate Burma. Cripps Mission to India. Both Congress and Muslim League refuse Cripps offer. Congress adopts Quit India Resolution (Aug. 8). Congress leaders arrested and Congress declared an illegal body (Aug. 9). Subhash Chandra Bose (Netaji) forms the Indian National Army in Malaya, with the help of the Japanese. He inaugurates the Government of Free India at Singapore.

1943: Lord Wavell Viceroy and Governor General of India. Wavell's proposals for a settlement fall through as the Congress and the Muslim League could not agree. **1945:** The Indian National Army under Bose surrenders to the British after collapse of Japan. National Army personnel tried for treason in India.

1946: Demonetisation of currency notes of the value of Rs. 500 and above (Jan. 12). Demonstrations against the trial of the INA men. The ratings of the Royal Indian Navy rise in open mutiny (Feb. 18). Cabinet Mission in India (Aug. 19). Cabinet Mission announces its plan for an interim government and a constituent assembly. The interim government is to be formed by reconstituting Viceroy's Executive Council. Both Congress and the Muslim League reject the proposal. Later the Congress accepts it. So the interim government is formed by inducting Congress nominees only. The Muslim League takes umbrage and starts direct action. Muslims attack Hindus in Calcutta and the rest of Bengal. Hindus retaliate. Riots break out. Viceroy persuades the Muslim League to come in. But the League declines to join the Constituent Assembly unless the demand for a separate state—Pakistan—is conceded.

THE NATIONAL MOVEMENT

The National Movement or the movement for independence was a part of a larger spectrum of national resurgence, which covered almost all aspects of national life, religious, social, educational, cultural and economic.

While the progress in the different spheres differed in degree and in kind from region to region, one common desire animated all regions, namely, gaining independence. How the British administration tackled this problem and how it finally ended in the partition of India and the formation of two independent states, India and Pakistan, is too long a story to be recounted in a few pages.*

When Lord Dalhousie laid down his office in 1856 and Canning took over as Governor General the British Empire in India had extended to its natural boundaries—from Indus in the west to Irrawady (Burma) in the east and from the Himalayas in the north to Cape Comorin (Kanyakumari) in the far south. The British Indian dominion was

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* All unacknowledged quotations in the Section are from Tara Chand, *History of the Freedom Movement in India*, Vols I-IV

made up of two distinct political segments—territories directly administered by the East India Company and those ruled by Indian princes who owed fealty to the company. For the first time in many years, peace seemed to have settled all over India.

But those who knew the antecedents leading to the establishment of *Pax Britannica* in India were skeptical of the apparent peace. The pacifist Lord Canning who succeeded the aggressive Lord Dalhousie as Governor General felt that the calm was ominous.

Replying to the toast at the farewell dinner given in his honour by the Directors of the East India Company in London, Canning said, "we must not forget that in the sky of India, serene as it is, a small cloud may arise, at first no bigger than a man's hand, but which growing larger and larger, may at last threaten to burst and overwhelm us with ruin". Never was prophecy more quickly fulfilled or so grimly. In the summer of 1857 the massed clouds burst and the entire British dominion in India shook to its foundations.

This was the revolt of 1857, which the British historians have dubbed the *Sepoy Mutiny* and the Indian historians, the *First War of Independence*. True, it began as a mutiny of Indian soldiers against their British commanders. But it soon changed its character and became a fight against British rule as such.

Indian soldiers had broken out in open mutiny against British officers many times previously—in 1806 at Vellore (Madras), in 1842 in Bengal, in 1844 in Sind, then in Bihar and Punjab. None of these had any political overtones. But the so-called Mutiny of 1857 differed radically in this respect.

All the previous mutinies had been put down mercilessly and the suspected ring leaders subjected to gruesome punishments, without proper investigation or trial. These helped only to feed the fires of discontent.

Meantime, other factors were building up political bonfires in different parts in India. Lord Dalhousie's *Doctrine of Lapse*, under which no prince was allowed to adopt an heir without the previous permission of the British rulers, extinguished many princely kingdoms in India. At the same time, the British Administration also started interfering in the internal administration of Indian States. This policy further inflamed the princely and aristocratic classes in India.

The two elements—military and political—coalesced in the revolt of 1857. The Indian soldiers having massacred the British personnel, marched to Delhi in May, 1857. They proclaimed the aged Mughal Emperor Bahadur Shah II as the Emperor of India. Bahadur Shah promptly issued a proclamation urging upon the people of India—Hindus and Muslims alike—"to end the tyranny and the oppression of the infidel and treacherous English".

Despite the attempts of British writers to play down the events of 1857 as an army affair, the British Prime Minister, speaking in the House of Commons on July 27, 1857, frankly admitted that the outbreak of 1857 was not just a military mutiny but a political revolt.

It is not quite correct to describe the revolt of 1857 as a national revolt. For, at that time, India had not yet become a nation. The revolt itself was the last kick of a dying feudal order, led by a decadent aristocracy. "The idea of a nation and therefore of nationality was a bequest of English education".

There is little doubt that the knowledge of English acquired by Indians in every part of the country facilitated inter-communication and expedited the process of national integration. The Indian middle class, steeped in English literature and history, gorged themselves with the ideas of *liberty, equality* and *fraternity* which the American War of Independence (1773—1787) and the French Revolution (1789) had glorified.

The immediate results of the 1857 revolt were three: 1. The administration of British India, until then under the control of the Board of Directors of the East India Company, was taken over by the British Government. Queen Victoria was proclaimed the Empress of India and the Governor General was designated the Viceroy and Governor General.

2. The British Indian army was re-organised. The quota of British personnel in the army was considerably enhanced and the artillery divisions were manned entirely by the British. In addition, many purely British regiments were formed. 3. The paramountcy of the British Government was proclaimed,

that is to say, all ruling kings and titular princes of India were declared feudatories of the British Crown. This proclamation raised many eyebrows among Indian princes, but there was little, they could do in the matter.

After all, unlike Dalhousie's Doctrine of Lapse, this declaration was merely the *due jure* expression of an authority, already functioning *de facto*. In later years, the Nizam of Hyderabad, the doyen of the Indian princes, tried to rake up the question with Lord Reading, the Viceroy. The Nizam's protest was silenced by the cryptic reply of Reading– "Paramountcy is paramount".

The take-over of the Indian Government by the British Government did not eliminate discontent, and tiffs with the white rulers continued to disturb the peace. The indigo riots of Bengal in 1859 were the first of such troubles. They were put down but subsequent investigations showed that it was the white planters who provoked the riots and the poor Indian peasants who suffered were innocent in the matter.

With the indigo riots, the agitation for freedom acquired greater momentum. Meanwhile the spread of English education brought into being a new generation imbued with liberal ideas and willing to fight a long drawn battle with the British for independence. At the same-time, a vernacular *Fourth Estate* was slowly taking shape. Up till now, all periodicals were in English and were controlled by Englishmen.

The English Press naturally supported British policies. So it became necessary to publish vernacular periodicals to express Indian aspirations. This resulted in the promulgation of the *Vernacular Press Act of 1878*. This was a discriminatory legislation intended to muzzle the periodicals in Indian languages. The reason advanced by Lord Lytton, the Viceroy, was that "the increasing violence of the native press now (was) directly provocative of rebellion". The whole of India protested against the Act and appealed to the British government to repeal it. The act was at last repealed by Lord Ripon in 1882.

Lord Lytton as viceroy (1874–1880) fathered an offensive brood of laws and regulations. *The Arms Act* (which exempted Europeans) and the abolition of import duties on British goods were among the more obnoxious performances of Lytton.

Lord Ripon's viceroyalty, otherwise benign, was sullied by the infamous *Ilbert Bill*. This bill amended the Criminal Procedure Code and specified that only European judges could try European offenders for serious misdemeanours. This piece of legislation amply reflected the racial prejudices of the ruling class.

In 1883 a proposal was set afoot to remove this anomaly from the Criminal Procedure Code. The European Community in India rose as one man to oppose the change and they won. "The Bill was so modified as to give the European offenders the right of claiming even in the least cases, trial by jury, of which at least half the number should be Europeans or Americans."

In 1883 the agitation over the Ilbert Bill still continued. Surendranath Banerjee was arrested for an article he wrote in the *Bengali*. Soon arrests of other persons for seditious articles followed. This accumulation of discriminatory laws, arrests and prosecutions, roused the masses.

"It was felt that the time had come to make a determined effort to secure a real and effective control in the management of national affairs". This could only be achieved by a country-wide organization which would mobilize public opinion all over India and carry the agitation to the masses.

So a series of conferences were held to evolve a national organization. In 1853, a national conference met in Calcutta under the leadership of Surendranath Banerjee. In 1884 Banerjee undertook another tour through north India to rally various political groups together and to collect money for a national fund. Another conference was held in 1885 again in Calcutta–in which delegates from Bengal, Upper India and Bombay participated. The success of these conferences showed that a national organization was not only feasible but also inevitable

Some Englishmen in India felt the same way. Henry Cotton and Allen Octavian Hume among them thought that an abiding concord between the government and the people had to be built up. Cotton wrote, "They (the educated Indians) tolerate the necessity of our government as an irrevocable necessity. They demand real, not nominal equality, a voice in the government of their own country and a career in Public service".

Hume went further. He formed the Indian National Union in 1854. The aim of the Union was "to oppose by all constitutional methods all authorities high and low here or in England, whose acts and omissions are opposed to the principles of the Government of India laid down by the British Parliament and endorsed by the British Sovereign".

100-YEAR-OLD CONGRESS

Indian National Congress completed one hundred years of its existence in 1985. Founded by A. O. Hume in association with various national leaders, it has stood the test of time to emerge as one of the strongest political movements in the democratic world.

It was the Indian National Union formed by A.O. Hume that assumed the name Indian National Congress at the conference held in Bombay under the Presidentship of W.C. Banerjee, a veteran lawyer of Calcutta. It was attended by 72 delegates from all over India.

The birth of the Indian National Congress was an unprecedented phenomenon in the political history of India. It marked the entry on the new educated middle class into national politics. The middle class, a byeproduct of the British Raj, was mainly composed of three classes—agricultural, industrial and professional. Each class had its own interests but a growing sense of nationality—often extolled as patriotism—united them in a common programme of action.

These classes were not caste-bound nor tied down by traditional customs. Fed on revolutionary ideas born of the American War of Independence and the French Revolution, they soon separated themselves into two groups—the extremists and the moderates—the equivalents of modern *hawks* and *doves*.

From 1885 onwards the Indian National Congress met every year. Its influence spread rapidly among the middle classes. Three main topics engaged its attention: (1) representative government and expansion of the number and functions of legislative councils both in the provinces and at the centre, (2) Indianisation of higher services, (3) Indian poverty.

In 1886 the Congress resolution on Indian poverty read as follows: "That this Congress regards with the deepest sympathy and views with grave apprehension the increasing poverty of the vast numbers of the population of India and desires to record its firm conviction that the introduction of representative institution will prove one of the most important political steps towards the amelioration of the condition of the people".

In 1889 at the fifth congress meet, the protection of the minority communities under a representative government was specifically urged. The minorities included Parsis, Christians and Muslims—and Hindus when they were in a minority in any particular area. This resolution formed the seed-bed of communal representation which in later years loomed dangerously on the political horizon.

The criticism of the Congress-led educated classes regarding the indifference and imperviousness of the British administration to the welfare of the Indian masses naturally annoyed the government which began to indulge in repressive measures. This encouraged the extremists who became more popular and consequently more venturesome.

As the 19th century drew to a close—to be precise on December 30, 1898—Lord Curzon came down to India as Viceroy. "Curzon was a brilliant intellectual—scholar, writer, speaker—but he was inordinately ambitious, overwhelmingly vain, obstinate, heedless of advice, contemptuous of opposition, self-righteous, unscrupulous and moody..." (Tara Chand).

The crowning ambition of Curzon was to destroy the political influence of the educated middle class, among whom the Bengali intelligentsia were the most prominent. So his first attention was directed to Bengal. His secretariat pointed out that the province of Bengal as constituted at the time was unwieldy with an area of nearly 190,000 sq miles, a population of 78.5 million people and a gross revenue of over 1,140 lakh rupees.

There was no direct contact between the heads of the provincial government and the people of Bengal. What made the question of special interest to Curzon was the fact that "the influence of East Bengal in the politics of the provinces is great, out of all proportions to the real political importance...These eastern districts of Bengal are a hotbed of purely Bengali movement, unfriendly, if not seditious in character".

So it was proposed (1903) that the province of Bengal should be reduced in size—by the transfer of Chittagong division including the port and the districts of Dacca and Mymensingh to Assam, but leaving Bihar, Chhota Nagpur and Orissa within Bengal. This would add up to a population of about 11 lakh as against 785 lakh in the old Bengal. A stupid proposal on all counts, it created an uproar not only in Bengal, but all over India. At countless public meetings, the scheme was execrated and denounced but the government remained adamant.

In1905 Curzon was compelled to revise his plan. The new scheme reduced the old province of Bengal in size and population (141,550 sq miles and 544 lakhs) and created a new province called East Bengal and Assam consisting of an area of 106,540 sq miles and a population of 310 lakh. The partition came into effect by a Royal Proclamation on 16th October, 1905.

The scheme was condemned not only in India but also by the British Press.

The Indian National Congress, unanimously condemned the partition. In the two Bengals themselves over 2000 public meetings, attended by 500 to 50,000 people were held. In these meetings Hindus and Mohammedans joined in the protests with equal zeal and earnestness. The courage with which Bengal faced its trial stirred the whole of India.

The constitutional agitation so far pursued had not made an impact. The Swadeshi movement and boycott of foreign goods, became the mainstay of the freedom movement. Side by side, open defiance of government orders, refusal to pay taxes and *bandhs* and *hartals* followed one after the other. The Congress approved the boycott of foreign goods—particularly cloth. The Swadeshi movement gave a fillip to indigenous industries especially in textiles.

Among the retaliatory measures adopted by the Government the first was the stoppage of grant to schools and colleges and their disaffiliation from the recognised universities. Peaceful agitators were broken up by the military, especially by the reckless Gurkha regiments. Flogging of agitators became a daily occurrence.

Historic Site

When the Congress Working Committee met at the historic Tejpal Hall, Bombay on December 27, 1985, it was doing something momentous—back-dating the birth of the Indian National Congress. Because the Congress came into being only on December 28, one hundred years ago.

To quote eminent historian A.C. Mazumdar: "The first meeting of the Congress took place at 12 noon on December 28, 1885, in the great hall at the Goculdas Tejpal Sanskrit College, where all the representatives were assembled amidst a distinguished, though somewhat limited, gathering of officials and leading citizens of Bombay."

Even the inscription on the marble plaque outside the Tejpal Hall confirms this: "In this historic hall on December 28, 1885, a band of gallant patriots laid the foundations of the Indian National Congress, which during these 50 years has been built up stone by stone, tier by tier, by the faith and devotion, courage and sacrifice of countless men and women, as the pledge and symbol of the invincible purpose to secure to India, their motherland, her legitimate birth-right of Swaraj. This tablet is placed to commemorate the occasion of its golden jubilee, December 28, 1935."

Meanwhile the new Lt. Governor of East Bengal, Bampfyde Fuller, tried to win over the Muslim population, castigating the Congress as a Hindu organization and offering special aids and encouragement to Muslim institutions.

Lord Minto who succeeded Curzon followed a judicious policy of admixture of the carrot and the stick, that is, unfaltering repression on the one hand and bonafide attempts at ushering in political reforms on the other. The 1905 session of the Congress at Banaras is in a sense, a turning point in the history of the Congress.

The president, Gopalakrishna Gokhale,

though a moderate himself, approved of aggressive agitation. There were, however, a good number of old timers including Gokhale who feared that aggressive tactics would lead to terrorism and that the national movement itself would get out of hand and become counter productive.

1905 also marked a radical change in the functioning of the Congress. So far, the Congress was merely a series of annual conferences at different places. From 1905 it started functioning as a permanent oganization, though annual elections often led to a change of working personnel.

In 1906 the police broke up a Congress conference in Barisol (Calcutta). The delegates were lathi-charged. Eminent leaders were man-handled by the police. This unprecedented treatment meted out to a peaceful gathering led to a radical change in the character of the national movement.

Hereafter, force was to be met by force. The white man's blood was to atone for the innocent blood drawn from inoffensive nationalists. This was a victory for the extremists. A crop of revolutionary leaders emerged—Aswini Kumar Dutt, Brahma Bhandhab Upadhyaya, Aurobindo Ghosh, Lajpat Rai and Bal Gangadhara Tilak. Tilak was from Maharashtra, and easily led the others. In Bihar, Khaparde emerged as the leader and Lajpat Rai led Punjab.

Before terrorism was adopted as a general policy, isolated killings had taken place. Chaphekar brothers in Maharashtra had shot two British officers, Rand and Ayerst. But from 1906 onwards regular terrorism broke out. In this Bengal, as usual, led. B.K. Ghose, B.N. Dutt and B.B. Upadhyaya were the leaders behind the terrorist movement in Bengal. Aurobindo Ghosh, then in Baroda came down to Calcutta, to reinforce the movement.

The most important terrorist organization was *Anushilan Samithi* with its headquarters at Calcutta. In East Bengal, Dacca became the main centre. The Anushilan Samithi ostensibly an organization for promoting physical development and social welfare, soon found followers all over India. The growth of terrorist activity was deplorable but in the circumstances inevitable.

Originally the Swadeshi movement had affected only established cottage industries—particularly handloom textiles. Now bigger entrepreneurs came on the scene, establishing heavy industries. Similarly, the boycott of British goods continued on a greater scale than before. Bonfires of foreign goods were conducted on a large scale in all big cities.

The sales of textiles in eight districts of Bengal fell from Rs.77,000 in 1904 to Rs.10,000 in 1905. Twenty new cotton mills were started in Bombay and Ahmedabad. 15 new banks and 5 shipping companies were floated. Thus there was an overall increase of big industrial units in several spheres.

While everybody supported the Swadeshi movement many disapproved of the boycott programme and still more, the terrorist activities. Their main fear was that this would alienate British public sympathy for Indian aspirations and harden the hearts of the rulers.

The Congress ranks sought a via media by appealing to Dadabhai Naoroji, the grand old man of India to preside over the Calcutta session in 1907. Dadabhai tried his best to placate both parties and proposed a new common platform for both, namely *Swaraj* or self-rule as the goal of the National Congress.

Fuller, the Lt. Governor of the newly created East Bengal province, was a typical imperial bureaucrat. He exploited Hindu-Muslim differences of opinion to create faction. He openly supported the Muslim majority and discriminated heavily against the Hindu minority in the province. He let loose unbridled repression in East Bengal, humiliating and insulting respected Hindu leaders, ruthlessly punishing teachers and students and carefully discriminating between Hindus and Muslims at every turn.

Minto, the Viceroy, did not approve of Fuller's policy as it violated the spirit of the central policy. The Secretary of State Morley fully endorsed the Viceroy's view point. Fuller did not agree with the views of his superiors in the matter and offered to resign rather than fight them. Fuller vacated the scene.

But the seeds of distrust and suspicion between Hindus and Muslims which he had sown sprouted. Already, the Muslims were chagrined at the Hindu religious rituals like fasting and tying coloured thread (*Raksha Bandhan*) which usually accompanied agitational programmes like boycott and picketing. The preferential treatment extended to Muslim government employees by Fuller at the expense of the Hindu employees made the

Muslims loyal supporters of the imperial regime. The sudden termination of Fuller's services embittered the Muslim community but they were soon reassured by the Viceroy that there was no change of government policy towards the Muslims.

The Muslims, in fact, formed a political organization, tentatively named *Muslim League*, which published anti-Hindu and pro-government pamphlets. A *Red Pamphlet*, very much in circulation, claimed that the government was on their (Muslims') side, that crimes against Hindus, that is, looting Hindu shops, abducting Hindu women, etc. would be overlooked by the authorities. Morley welcomed the formation of such a League, characterising it as a "native opposition" to the Congress. The policy of *divide et empera* had begun, in earnest.

"In an atmosphere made tense by propaganda and counter propaganda," says Tara Chand, "it is not surprising that clashes occurred. Rioting had begun in Mymensingh district in April and May 1906 causing panic among the Hindus".

"Communal riots on a bigger scale occurred in 1907 at Comilla in Triperah district and in Jamalpur taluk of Mymensingh district". In future these riots were to become almost a daily occurrence everywhere in British India.

Differences of opinion regarding attitudes and policies to be adopted in the National Movement came to a head in 1907 when the Congress met at Surat. The moderates (doves) in the Congress who included such statesmen as Gokhale, Phirozshah Mehta, Surendranath Banerjee and Madan Mohan Malaviya were against the extremist programme of action, lest it should strengthen the anti-Indian stance of the British public.

The extremists who also contained a galaxy of celebrities like Tilak, Aurobindo Ghosh, Bipin Chandra Pal and Lala Lajpat Rai had no faith in the bonafides of the British Indian government or in the goodwill of the pro-Indian section of the British public. Leaders of the extremist faction wanted to "capture the Congress and make it an instrument of revolutionary action".

The proceeding of the Surat session was marred by threats and counter threats. Utter lack of discipline characterized the session from the start. It ended just as ignominiously. The police had to interfere to close the meeting and to clear the pandal. The Congress had split.

The moderates retained control of the Congress. They met immediately after and drafted the new creed of the Congress. Only

Land Marks in 100 Years.

Ramsay Mac-Donald would have presided over the 26th session of the Indian National Congress in 1911 at Calcutta had not his wife died. He later became the Prime Minister of the United Kingdom.

* * *

Phirozśhah Mehta, president-elect of the 24th session at Lahore in 1909, suddenly decided not to attend it following Lady Mehta's warning that Surat would be repeated.

The 1907 Surat session ended in chaos. Lokmanya Tilak faced an audience of fist-shaking 'moderates'.

He defied their threats only to have a shoe aimed at him which instead struck Surendranath Banerjee and canoned off Phirozshah Mehta. The rest was chaos, as delegates struck at anyone who looked like a moderate.

* * *

At the 22nd session at Calcutta in 1906 the party accepted the aim of "swaraj". Kadabhai, presiding over the session for the third time, introduced this expression.

However, it was Tilak who picked it up and made it into a movement for mass awakening.

* * *

Dadabhai died before the 32nd session at Calcutta in 1917. Tilak died three years later and his political opponent, Gopal Krishna Gokhale left the scene before the 30th session at Bombay in 1915.

With the death of these stalwarts, the party entered a new phase under the leadership of Mahatma Gandhi and Motilal and Jawaharlal Nehru.

those who accepted the new creed were eligible for membership. This naturally excluded the extremists. The moderates, thus left alone, had to keep the Congress going as best they could.

Since independence there have been 15 Congress Presidents including the present President, Mr. Rajiv Gandhi. The congress split in 1969 and the Election Commission on Jan. 12, 1971 and subsequently the Supreme Court, on Nov. 11, 1971, ruled that the faction led by Jagjivan Ram was the real Congress. On July 23, 1981, after the 7th Lok Sabha elections, the

Congress Presidents From 1885

1885		W.C. Bannerjee
1886		Dadabhai Naoroji
1887		Badruddin Tyabji
1888		George Yule
1889		Sir William Wedderburn
1890		Sir Phirozshah Mehta
1891		P. Ananda Charlu
1892		W.C. Bannerjee
1893		Dadabhai Naoroji
1894		Alfred Webb
1895		S.N. Banerjea
1896		Rahimtulla Sayani
1897		C.S. Nair
1898		A.M. Bose
1899		R.C. Dutt
1900		N.G. Chandravarkar
1901		D.E. Wacha
1902		S.N. Banerjea
1903		L.M. Ghosh
1904		Sir Henry Cotton
1905		G.K. Gokhale
1906		Dadabhai Naoroji
1907		Dr. Rashbihari Ghosh
1908		Dr. Rashbihari Ghosh
1909		M.M. Malaviya
1910		Sir William Wedderburn
1911		B.N. Dhar
1912		R.N. Madholkar
1913		Syed Mohammad Bahadur
1914		Bhupendra Nath Basu
1915		Sir S.P. Sinha
1916		A.C. Mazumdar
1917		Mrs. Annie Besant
1918		(Special Session) Hassan Imam
1918		(Annual Session) M.M. Malaviya
1919		Motilal Nehru
1920		(Special Session) Lajpat Rai
1920		(Annual Session) Vijayaragavachariar
1921		C.R. Das (In Prison) Acting President Hakim Ajmal Khan
1922		C.R. Das
1923		(Special Session) A.K. Azad
1923		(Annual Session) Mohammed Ali
1924		M.K. Gandhi
1925		Mrs Sarojini Naidu
1926		S. Srinivasa Iyengar
1927		Dr. M.A. Ansari
1928		Motilal Nehru
1929-1930		Jawaharlal Nehru
1931		Vallabhbhai Patel
1932		R. Amritlal
1933		Mrs. J.M. Sen Gupta
1934		Rajendra Prasad
1935		Rajendra Prasad
1936		Jawaharlal Nehru
1937		Jawaharlal Nehru
1939		Subhas Chandra Bose
		(Subhas Chandra Bose was re-elected but had to resign. Rajendra Prasad was appointed in his stead)
1940–46		(Maulana) Abul Kalam Azad
1946 (July-Sept.)		Jawaharlal Nehru
1946–47		J.B. Kripalani
1948	Jaipur	Pattabhi Sitaramaiah
1950	Nasik	Purushotam Das Tandon
1951	Delhi	Jawaharlal Nehru
1953	Hyderabad	Jawaharlal Nehru
1954	Kalyan	Jawaharlal Nehru
1955	Avadi	U.N. Dhebar
1956	Amritsar	U.N. Dhebar
1957	Indore	U.N. Dhebar
1958	Pragyotishpur	U.N. Dhebar
1959	Nagpur	U.N. Dhebar
1960	Bangalore	Indira Gandhi
1961	Bhav Nagar	N. Sanjiva Reddy
1962		N. Sanjiva Reddy
1964	Bhubaneswar	K. Kamaraj
1965	Durgapur	K. Kamaraj
1966	Jaipur	K. Kamaraj
1968	Bangalore	S. Nijalingappa
1969	New Delhi	C. Subramaniam
1970	Delhi	Jagjivan Ram
1971	Ahmedabad	D. Sanjivayya
1972	Calcutta	Shankar Dayal Sharma
1975	Chandigarh	D.K. Barooah
1976	New Delhi	Brahmananda Reddy
1978	New Delhi	Indira Gandhi
1983	Calcutta	Indira Gandhi
1984	New Delhi	Rajiv Gandhi

ection Commission finally recognised the ongress led by Mrs. Indira Gandhi as the gitimate organization.

On the other side, the Congress faction pposed to Mrs. Indira Gandhi has been led by veterans like Messers S. Nijalingappa, Devraj Urs and Sharad Pawar. Also there are other Congresses like Congress for Democracy (CFD) led by Mr. H.N. Bahuguna and Congress (J) once led by the late Mr. Jagjivan Ram.

REPRESSION AND REFORM

The year 1908 saw a hideous tug of war etween the Government armed with power-l weapons of repression and an infuriated eople putting up resistance with all their orce of will and sacrifice against the onslaught f the other.

The natural result was that agitation went nderground. Secret societies were formed verywhere and terrorism became their atchword. Bombs and bullets replaced har-ls and processions. The government tied gether all suspected persons into conspiracy angs and prosecuted them wholesale.

Trials and convictions became the order of e day. Outstanding leaders were either nprisoned or deported. Bipin Chandra Pal d Lajpat Rai went into-self-imposed exile, urobindo escaped to Pondicherry, a French nclave and Tilak remained incarcerated in andalay.

The Government of India armed itself with a eries of extraordinary ordinances conferring bitrary powers to arrest, detention and onfiscation for even trivial infringements of e law. *The Explosive Substances Act 1908 the ndian Criminal Law Amendment Act 1908 nd the Newspapers (Incitement and Offences) ct 1908,* followed the *Prevention of Seditious eetings Act 1907,* which was already in force. s an epilogue to the whole unsavoury set-up f laws came the *Press Act of 1910,* which was rawn up to close all loopholes in the ewspapers Act of 1908 and to make it more rbidding and intimidating.

Moreley-Minto Reforms of 1909 provided r greater association of qualified Indians ith the Government in deciding public uestions. One seat on the Governor Gener-'s Council was reserved for an Indian. atyendra Sinha (later Lord Sinha of Raipur) as the first Indian to be appointed to the overnor General's Council as Law Member. e Governors' Councils of Madras and Bom-y were enlarged to contain four members each. An Executive Council was formed in Bengal.

The composition and functions of the Legislative Councils were changed. The number of additional members to the Central Legislature was raised from six to a maximum of 60 of whom not more than 28 were to be officials. The Governor General had the power to nominate three non-official members to represent specified communities. Two other seats were also reserved for nomination. The remaining 27 were to be elected from certain classes like land owners and organizations like Chambers of Commerce.

In the Provincial Councils, the maximum number of members was raised to 50 but the majority of them were to be officials and nominated members. The elected members were again to represent certain specified classes or bodies. The Muslim community was to get representation, through a separate electorate reserved for them. Thus, the principle of communal representation was constitutionally recognised for the first time.

If the reforms were intended to pacify unrest, they failed. The vicious chain of violence, repression and more violence remained unbroken. The mists of doubt and apprehension clouded the horizon.

This satisfied the policy makers in Delhi and London. What they wanted was to boost the Muslim League as a counter weight to the Congress. They knew that the move was likely to create communal conflict and apparently welcomed it for that very reason.

The First World War brought Britain into conflict with Turkey, whose Sultan styled himself the Khalif of all Muslims. That the Khalifate was in danger shook the passivity of the Indian Muslims and made them restive and thirsting for some sort of action.

The Montague-Chelmsford Report noted that though the Muslims as a whole kept aloof from revolutionary activities from 1903 to

1910 "since 1911 their attitude has been growing far less acquiescent". At the (Royal) Coronation Durbar held on December 12, 1911, two important announcements were made, one was the annulment of the partition of Bengal and the other the transfer of the capital from Calcutta to Delhi.

It was thought that the first would placate the Hindus and the second the Muslims. Both failed to evoke the expected responses. Already, the partition of Bengal had become a side issue as far as the Hindus were concerned. The main issue became a larger share in the government of the country.

The transfer of the capital evoked little or no enthusiasm among the Muslims. One salutary effect was that the old Muslim leaders, who were preferred and pampered by the British found themselves practically ignored. Many of the oldtimers like the Aga Khan and the Nawab of Dacca left the League. Fresh blood like M. A. Jinnah and Muhammed Ali became the leaders of the organization.

The change in leadership helped to bring the Congress and League together. Both represented the middle class intelligentsia of India. The 1913 session of the League at Lucknow, foreswore the oft-repeated loyalty to the crown and adopted 'self-government under the aegis of the British crown' as its political goal. In 1915 the Congress and the League chose the same place (Bombay) for their annual conferences and most of the delegates of both organizations indulged in frequent exchange of ideas. Again in 1916, the Congress and the League met at the same place, Lucknow. At Lucknow the Congress conceded the Muslim demand for separate electorates and the Muslims responded by reducing their weightage in elections in the Muslim majority provinces of Punjab and Bengal. This agreement came to be known later as the *Lucknow Pact*.

With Turkey joining Germany against the allies in the first World War, the loyalty of the Indian Muslims to the British crown became suspect. The Muslim newspapers which supported Turkey were suppressed and repression was let loose on the Muslims.

Side by side, the British government adopted conciliatory tactics also, like promising that the Muslim holy places outside India will be protected by the allies. Meanwhile, Annie Besant who had joined the Congress joined hands with Tilak in demanding Hon
Rule for India.

Montford Reforms, so called after Montagu
the Secreatary of State for India and Chel
sford the Viceroy are contained in the Gover
ment of India Act 1919. Before the Act w
passed, the British made the histor
announcement (Aug. 20, 1917) that the poli
of H.M.'s Government... *"is that of increasi
association of Indians in every branch of t
administration and the gradual developme
of self-governing institutions with a view to t
progressive realisation of responsible gover
ment in India as an integral part of the Briti
Empire"*.

The Government of India Act 1919 pr
vided, among other things, for two chambe
of legislature at the Centre—the Legislati
Assembly and the Council of State. The Asse
bly was to consist of 103 elected and
nominated members. All decisions of t
legislature were subject to ratification by t
Viceroy. In the provincial sector, a form
dyarchic government was established.

With the defeat of Turkey and the aboliti
of the Sultanate, the Khalifate ceased to ex
This agitated all Muslims in India. The Musli
of the world had no religious head. In 191
conference at Lucknow, sponsored by Musl
leaders, the Ali brothers—Muhammad Ali a
Shaukat Ali—and Abul Kalam Azad decided
form an All India Khilafat Committee.

Seth Chotani of Bombay was elected Pre
dent and Shaukat Ali, brother of Muhamm
Ali, the Secretary. Shaukat Ali, who was at t
time in prison, was to take charge as soon
released.

Rowlatt Act, so-called after the President
the Committee, which was constituted
review the measures to be adopted to cont
the national movement, sought to perpetu
the extraordinary powers conferred on t
government during the war period. The
were framed as 2 Acts (collectively known
the Rowlatt Act) which the Imperial Legisla
Council dutifully passed in March, 1919.

This Act roused the ire of all Indians, Hin
and Muslims alike. Muhammad Ali Jinnah, la
to become the President of the Muslim Leag
and the founder of Pakistan, resigned his s
in the Council. In his letter of resignation
the Viceroy he wrote "In my opinion,
government that passes such a bill or s
laws in times of peace forfeits the claim to

alled a civilized government." The Rowlatt ct, in point of fact, proved a shot in the arm or the Khilafat movement.

As a protest against the arbitary provisions f the Acts, Gandhiji, on behalf of the Congress alled for a *hartal* to be observed on April 6, 919 all over India. The *hartal* was a complete uccess.

Punjab saw the worst manifestation of Britsh power. Its Governor, Michael O' Dyer eemed to love brutal savagery. He warned the ublic that they would be held responsible for he proper conduct of the public meetings and or the language used in the speeches. On 10th pril, when the news of Gandhiji's arrest eached Lahore, the students took out a rotest procession. The police opened fire on he unoffending processionists wounding nany.

Woorse was the fate of Amritsar, which held rotest demonstrations. Satyapal and Kitchelew were prohibited from speaking at Amritar and were arrested for deportation. The ews of deportation infuriated the people. Crowds marched to the Deputy Commissioner's office to demand the cancellation of the rder of deportation. Mounted police fired pon the crowd, killing some and wounding nany.

A protest meeting against this outrage was rranged at Jallianwallabagh on the 13th. The overnment, in anticipation of trouble, handed over Amritsar to the army under the ommand of General Dyer. Jallianwallabagh urned out to be a deadly trap. An enclosure, rotected by high walls, had only one small ntrance on one side and three or four small penings on the other. As the crowds filled the nclosure, Dyer and his troops appeared at the nain entrance and bullets rained on the rowd. Men died in hundreds, while most of hose who sought escape through the narrow penings on the other side were crushed to eath in the melee. The massacre at Jallianwalabagh was an act of unprovoked savagery, nequalled in history. It shook the country rom end to end.

The first Khilafat Conference was held at Delhi on the 23rd November, 1919. It was resided over by Fazlul Huq. Gandhiji, Motial nd Malaviya among the Congress leaders vere present. On the second day Gandhiji was oted to the chair. In 1920, when the Congress Committee met at Delhi, Gandhiji presented a programme of *non-cooperation* which was accepted by the Committee.

A few days later the Khilafat Conference also accepted the programme of non-cooperation. In June 1920, the Khilafat Committee met at Allahabad and endorsed the non-cooperation movement in full. This included surrender of titles and honorary posts, resignation from the civil service and the army and refusal to pay any sort of tax.

A special session of the Congress in September 1920 ratified the non-cooperation movement. The Congress resolution was strongly supported by the Jamat Ulam-I-Hind, calling upon all Muslims to participate fully in the movement.

At the next session of the Congress at Nagpur, a new constitution was adopted for the Congress, which enabled it to act as a permanently functioning organization. Gandhiji explained the non-cooperation movement as a positive movement. "Complete Civil Disobedience", he said, "is a state of peaceful rebellion—a refusal to obey every single state-made law". The new movement caught the imagination of the masses. The educated middle class was already in ferment.

Leading lawyers like Motilal Nehru and C. R. Das, gave up their profession. Subhash Chandra Bose resigned from the Indian Civil Service. From 1st August 1920 when it started to 6th February, 1922 when it was suspended, the non-cooperation movement moved in a crescendo. The boycott of foreign clothes and bonfires were becoming popular in big cities like Calcutta, Bombay, Madras and Allahabad. The non-cooperation movement was a roaring success.

On the 15th Feb., 1922 a small town Chawri Chawra in the district of Ghorakpur in U.P. became the scene of a violent clash between the police and some processionists. The police took refuge in the station but the mob set fire to it. Gandhiji responded by suspending the non-cooperation movement, as he considered *Chawri Chawra* an open violation of non-violence.

The sudden suspension of the movement occasioned violent differences of opinion. Most of the Khilafists lost faith in Gandhiji's leadership. Taking advantage of this division in nationalist ranks, the government arrested Gandhiji on March 10, 1922. He pleaded guilty and asked for the severest punishment. He was convicted to 6 years imprisonment and confined to the Yervada Central Prison in Pune (then Poona).

The Congress met in Gaya in December, 1922 under the Presidentship of C. R. Das. A Committee appointed to enquire into the civil disobedience movement, opined that the country was not prepared to continue the movement and recommended that cooperation with the government under the Montford Reforms would be more helpful to the national cause. This meant entering the legislative councils. However, a resolution to this effect was defeated. C. R. Das resigned from the Presidentship on January 1, 1923. He and Motilal Nehru formed the Swaraj Party.

Khilafat Movement, however strong, had ultimately fizzled out.

Swaraj Party founded by C. R. Das and Motilal Nehru was desirous of working the Montford Reforms, while the Nationalists or Extremists were opposed to it. The Swaraj Party consisting of Moderates and Liberals, contested the 1920 elections and some of them were elected, Srinivasa Sastri and Sivaswamy Iyer among others. They formed a sort of opposition and succeeded in defeating many government motions and abolishing certain obnoxious acts as the Press Act of 1910.

In 1921, the second election for the Central Legislature was held. By the time, mar provinces were having their elected Council Here also, the Swaraj Party made itself political force. In the second Imperial Legisl tive Assembly the Swarajists captured 47 of 1 elected seats. The leader in the Imperi Legislative Assembly was Motilal Nehru. H was ably assisted by a cadre of celebrities Vithalbhai Patel, Ramaswamy Iyengar, Bip Chandra Pal, and others.

The membership of the Councils offere tempting opportunities for ambitious men aspire for influential positions and cushy job

This naturally led to splits within the part In June 1925, C. R. Das passed away. With th towering personality out of the scene, ope disruptions appeared in the party.

The Viceroy—Lord Reading—took fu advantage of the differing opinions in th Swaraj Party. He affirmed that the governme had no ideas of changing its stand, ar abolishing iniquitous acts like the Beng Ordinance. The Swarajists, finding themselv thwarted at every session, walked out of th assemblies. Even then, there were a number leaders like Jayakar, Kelkar, etc. among the who chose to continue to cooperate with th government. They formed a new party, th *Responsive Cooperation Party*. It was sti born.

PACTS AND CONFERENCES

The prerequisite of *Swaraj* or independence was an accord between the Hindus and the Muslims. All leaders were agreed on it. The Hindu majority believed that *Swaraj* meant *Muslim Raj* while the Muslim minority was afraid that the Hindu majority would swamp them.

By 1906, the Muslims expressed their fears by demanding separate electorates. The British Indian Government was only too glad to accommodate Muslims. The Government openly favoured the Muslims, on the ostensible ground that they were a minority and needed protection.

During the early years of non-cooperation, it appeared that the two communities came together. But then there was the Khilafat movement to link them together.

The Moplah (Muslims) rebellion of 1921 in Kerala (then British Malabar) transform itself as the massacre of Hindu landed famili destruction of Hindu properties and Hin temples. Even forcible conversion of son .Hindus was reported.

The revival of the Hindu Maha Sabha 1923 added fuel to the fire. In 1924, commun troubles seemed to hold the whole of India its diabolic grip. Its worst manifestation was Kohat (North West Frontier Province) on th 9th and 10th September 1924. There we large scale killings of Hindus and looting Hindu properties and the Hindu populati had to be evacuated from the town.

The suspension of the non-cooperati movement following the Chawri Chawra in dents and the vaporisation of the Khalif (1924) left nationalist India in a politi vacuum. Gandhiji felt that before furth political agitation was taken up an organizational and educative build-up was necessary. Although his term of imprisonment extended to 1928 he was unconditionally released in 1924 for reasons of health.

Presiding over the Belgaum Conference in 1924 he laid down the basic programme. He told the delegates, "Go throughout your districts and spread the message of *Khaddar*, the message of Hindu-Muslim unity and the evils of untouchability and take up in hand, the youth of the country and make them the real soldiers of Swaraj".

He called upon the conference to adopt as the basic qualification of a Congressman, spinning 2,000 yards of yarn a month, instead of contributing four annas as membership fee. He went round the country spreading the message of Khadi. The response was overwhelming. In September 1925 he called together a meeting of the All India Congress Committee (AICC) in which the political and economic wings of the Congress were separated.

The political programme was to be handled by the Swarajist members of the Congress while the Khadi programme would be taken up by the All India Spinner's Association as an autonomous organization working within the framework of the Congress. All Congressmen were called upon to wear only Khadi materials and nothing else.

In 1926 he retreated to his Ashram at Sabarmati and spent an year of silence, during which he concentrated on the expansion and consolidation of the Khadi programme. On the termination of his year of silence, he declared, "I have come to the conclusion, that we can have Swaraj, even Rama Raj, if we fulfil the triple programme—that is Khadi, Hindu-Muslim unity and the abolition of untouchability".

In the meantime, the Swarajists and the Nationalists in the Indian legislatures were demanding that Indians should participate effectively in the administration of the country. Lord Birkenhead (1925) 'Secretary of State for India' derided the idea of Indian nationhood in the House of Lords. He said, "To talk of India as an entity is as absurd as to talk of Europe as an entity...There never has been such a nation. Whether there will be such a nation, the future alone can show".

While the political terrain looked like a desert and hopes of independence a mirage, communal riots continued to rock the country. In Calcutta, Swami Shraddananda was murdered by a Muslim fanatic. In 1927 the Frontier Muslims rose against the Hindus which led to their exodus to Peshawar.

In 1927 a Parliamentary Commission was appointed to look into the question of Constitutional Reforms for India and make suitable recommendations. The Commission was headed by Sir John Simon, a leading constitutional lawyer of Britain and a member of Parliament.

The Commission visited India in 1928 and toured throughout the country collecting evidence. The Congress boycotted the commission. The Liberal Federation led by Sir Tej Bahadur Sapru did the same. Even the Muslim League joined the boycott.

While the Commission doggedly pursued its programmes seemingly oblivious of stormy scenes and angry protests, the Government of India felt the impact of the storm and was forced to do something to appease the Indian public. In 1929 Lord Irwin, the Viceroy declared that the natural issue of India's Constitutional progress was the attainment of *dominion status*. The statement also proposed to hold a Round Table Conference on the subject as soon as possible.

The statement which left the Simon Commission "high and dry" raised more storms in the British Parliament than anywhere else. Can a Parliamentary Commission be put aside in such a manner? What was the justification for announcing Dominion Status as the objective of the British policy in India? The net result was that the concept of Dominion Status was watered down to nothing while the formation of the Round Table Conference remained a dubious proposal.

Meanwhile on March 16, 1927 the Council of State passed a resolution at the instance of C. Sankaran Nair recommending to the Government that no steps towards responsible Government be taken until Hindus and Muslims agreed to dispense with separate electorates.

This resolution brought forth a spate of inter-party negotiations — between various parties and different persons and at differing levels. While there was a general agreement on joint electorates with reservation of seats for Muslims someone or another raised objections on one point or another all the time. This obstructed any final solution. Thus the negotiations dragged on till the end of 1929, when the Congress came out with the outright declaration on 31st December 1929, that "the word Swaraj in Article 1 of the Congress constitution shall mean complete independence".

While the talks continued Gandhiji decided to launch Satyagraha and advised the Viceroy about his decision. His first act was to go to Dandi and make salt which was then a government monoploy. He set out on the march at the age of 61 in March 1930. He reached Dandhi with his followers on April 5, 1930. He walked into the sea waters and returning took a lump of salt from the salt fields and thus violated the law.

All repressive laws were soon brought into force. The repealed Press Act of 1910 was revived. Gandhiji and a lot of other outstanding leaders were arrested. In the agitation that followed some 100,000 persons were reckoned to have been imprisoned.

It was expected that with the incarceration of Gandhiji on May 5 at Yervada Jail and the imprisonment of the other leaders the movement would dissipate. The effect was just the contrary. Satyagraha became a way of life for millions of Indians and the leaderless movement grew apace every day. On June 2 Lord Irwin the Viceroy wrote..."the movement is serious and has permeated many strata of Indian society. It has caught their imagination and swept them off their feet and obviously has dangerous potentialities".

In the face of the growing agitations, the Government of India decided to summon a Round Table Conference in London. This was to consist of representatives of the following: (1) all India parties—moderates and extremists alike (2) communal organizations like the Hindu Mahasabha, the Muslim League, the Sikhs, Christians, etc. (3) land-owners and industrialists (4) special Indian groups like the Europeans and Anglo-Indians (5) Indian Princes (6) British Parliament members representing all parties. There were altogether 89 members.

Congress leaders like Gandhi who were in prison were not invited since they laid down a condition precedent for the Round Table, namely the announcement that *Poorna Swaraj* for India was the ultimate objective of the Round Table.

The First Round Table Conference was opened by *King George V* on November 12, 1930. The King observed, "Ten years is but a brief span in the life of any nation but the decade has witnessed..a quickening and growth in ideals and aspirations of nationhood, which defy customary measurement of time". This was only too true for the progress in nationalist growth during the decade was unique. If the Round Table achieved nothing else it evolved a new concept of true India—a federation consisting of the British administered provinces and states ruled by Indian princes.

This was a magnificent objective, a "great and mighty conception", as Lord Reading put it. For the rest, the conference was a dismal failure.

The Round Table Conference having failed to achieve any substantial solution to the Indian problem, and the civil disobedience movement going on with increasing momentum all repressive laws were brought into action again. It was only then that the British authorities realised that there can be no abiding solution of the Indian question, without the active cooperation of the Congress leaders. As a first step towards reconciling the Congress, Gandhiji and the other leaders of the Congress were released from jail on January 26, 1931.

Gandhiji on release felt that he wanted peace but with honour. Britain also wanted peace but without trouble. But first, the impasse had to be broken. So Gandhiji wrote to the Viceroy, asking for an interview. A pact was agreed upon during the interview. Gandhiji was spiritualism personified. Lord Irwin was a devout Christian at the bottom. It was this common character that blossomed forth as the Gandhi-Irwin Pact in March 1931.

The main points were (1) Federal character of free India (2) Participation of the Congress in all negotiations (3) Civil Disobedience movement will be discontinued (4) Boycott of British goods may be resorted to on a propagandist basis but not as a political weapon (5) Picketting and boycott activities may be carried on but without offending the existing laws (6) Ordinances promulgated to countenance civil disobedience movement and consequential acts following upon them, like prosecutions and confiscations, will be rectified as far as they were possible of rectifications.

The Gandhi-Irwin pact was ratified by the Congress at its Karachi Session presided over by Vallabhai Patel on March 29, 1934. The *Second Round Table Conference* which opened on the 7th September 1931 was distinguished by the fact that the Congress participated and was represented by Gandhiji as the sole delegate of the Congress.

By this time, a National government by Ramsay Macdonald was formed in Britain. It wa dominated by the Conservative Party. Sir Samuel Hoare succeeded Wedgewood Benn as the Secretary of State for India, while Lord Willingdon replaced Irwin as Viceroy. This change complicated matters. The British authorities wanted to exploit the communal tangle to the utmost.

There were more than 104 members for the Second Round Table Conference including Gandhiji. The Muslim question had already become acute with extermists gaining the upper hand in the Muslim League. In April 1931 the All India Muslim League declared their minimum programme which contained 10 demands: (1) autonomy of the federating units (2) Residuary powers for the states (3) Transfer of power to provincial governments (4) Federal subjects to be selected by the consent of the provinces (5) No difference in the powers exercised by the British provinces and the Indian States (6) One-third of Federal seats to go to the League (7) Muslim majority rule in Muslim-majority provinces (8) Separate communal electorates (9) Muslim members in both federal and provincial cabinets (10) No legislation in communal matters, if ¾ of the community members objected.

A Minorities Sub-Committee was appointed by the Second Conference, presided over by the British Prime Minister. Here all minor groups agreed with the Muslim League on one point—that their inerests should be maintained and protected, whatever form the Constitution assumed. It was difficult to provide such a blanket assurance to all minorities big and small. The conference concluded without reaching any decision.

When Gandhi returned to India in December 1931 the country was labouring under a load of repressive laws called Ordinances. 15 Ordinances were passed in 1931 alone. The only remedy left was to resume civil disobedicence.

In the North West Frontier Province Abdul Gaffar Khan (since known as the Frontier Gandhi) raised a volunteer corps of one lakh Pathans called the Servants of God and affiliated it to the Congress. In Bengal, terrorism began again. The Government issued more harsh and stern Ordinances for the muzzling of the press, detention of suspects and unfettered freedom for the executive to do whatever they thought fit.

In 1932 the working committee of the Congress called upon the nation to resume Civil Disobedience including nonpayment of taxes. Fresh ordinances were promulgated by the Government. All outstanding leaders of the Congress were arrested and imprisoned.

The Second Round Table conference having failed to solve the communal problem, the British Prime Minister took it upon himself to do it. In August 1932 Prime Minister Ramsay Macdonald announced the communal award. The Award was based on the British theory that India was not a nation but congeries of racial, religious and cultural groups, castes and interests. The following minorities were recognised under the Award—Muslims, Depressed classes, Backward classes, Indian Christians, Anglo-Indians, Sikhs, Europeans, Landholders, Commercial and Industrial classes, Labour and Universities. These were given more than their legitimate shares of seats in the legislatures.

As a protest against the proposal Gandhiji started a fast on Sept. 26, 1932. The news sent a shiver through the nation. The leaders of the upper caste Hindus and those of the depressed classes met and came to an agreement on the question. This is known as the *Poona Pact*. They requested the Government to drop the proposal for separate electorates. The Government of India agreed to do so and Gandhiji broke his fast on Sept. 29, 1932.

The *Third Round Table Conference* met in London on November 17, 1932 and continued its deliberations till December 24. This session was only a shadow of the earlier conferences. Jinnah was not invited. The princes were not interested and sent their ministers to the conference. Sir John Simon was one of the British delegates who attended. After the end of the conference the British Government published a White Paper which practically reproduced the Simon Commission recommendations but added a scheme for a Federal Government if the Princely States agreed. The White paper in due course became the Government of India Act 1935.

The Act of 1935 provided two alternate constitutions for the Central Government—one a Federal Government consisting of British provinces and Indian States, that is, if a majority of Indian States were willing to accede to the Federation. This never happened. The alternative was to work the 1919 Act with some modifications. This was the alternative finally accepted. In this as in all previous Acts, the Governor-General had overriding authority in all matters.

Provincial constitutions proposed were markedly different from the previous ones. In the first place dyarchy was abolished. The provinces were considered autonomous and were to be governed by ministers chosen from the elected members. Though the Govenonr, still possessed overriding authority, it was understood that he would not interfere, until a crisis of some sort emerged.

The Act came into operation from April, 1937, so far as the provinces were concerned The Central Government continued withou any major change. After a lot of discussion whether the Congress should cooperate in working provincial governments, it was finally decided that it should. The Congress put up its own candidates in every province. So also did the Muslim League and lesser political parties

The Congress won with a huge majority in five provinces—Madras, Bihar, Central Province, United Province and Orissa. In the other provinces Congress acquired a sizeable number of seats. In 1937 the Congress took charge of the governments in seven provinces as interim ministries. In the remaining four provinces— Punjab, Bengal, Assam and Sind,—non-Congress parties took office.

The federal part of the new constitution having been shelved, the Central Assembly of 1934 continued to function. It continued with 44 Congressmen led by Bulabhai Desai and 11 Nationlists under M. S. Aney. Independents who held the balance were led by M. A. Jinnah The sole purpose of the Central Assembly was to show that it had no confidence in the Government. This was achieved by cut motions, rejections of the budget, etc. These activities had little impact because the Viceroy had the ultimate power to certify any bill as passed.

THE PARTITION

Though partition of India broke into history suddenly and ruthlessly, it had been in the making for a long time. Its roots were visible in the Hindu-Muslim riots which started as early as 1881 and continued intermittently.

The British administration took advantage of these riots so as to encourage the Hindu-Muslim conflict and perpetuate it. Ostensibly, three factors triggered communal riots: (1) Cow protection (2) Hindi-Urdu controversy and (3) Assertions of religious privileges on the occasions of festivals and holy days, especially when Hindu and Muslim festivals coincided.

These were only the apparent causes. The real reasons were more political than religious.

The formation of the All India Muslim League at Dacca (now Dhaka) in December 1906; provided a focal point for Muslim political aspirations. When Muhammed Al Jinnah became President of the League, he started defaming and devaluing the Congress as a national organization.

In 1937, when the Congress and the Muslim League started working provincial ministries the rivalry between the two organization came into the open.

In 1937, Jawaharlal Nehru wrote to Jinnah "In the final analysis, there are only two force in India today—British Imperialism and the Congress representing Indian Nationalism" Jinnah replied pointing out (1) that the Hindu and Muslims had nothing in common and (2 that the Muslims of India constituted a separate nation and therefore needed a separat state. The rift was complete.

The Congress suffered a great impairment of power by the alienation of Jinnah. Jinnah, who had resurrected the League, towered above all other Muslim leaders and the Muslim community as a whole supported him. However, the Congress claimed some Muslim leaders, who were distinguished from the League adherents as nationalist Muslims. Abul Kalam Azad was one such. The essential trouble here was that leaders like Azad were few and far between and commanded little mass support among the Muslim community. The British government openly supported the Muslim League. So the partition of India was only a question of time.

The outbreak of the Second World War, which commenced with Hitler's invasion of Poland on September 1, 1939, called for a complete change of policy on both sides—the British Indian Government and the National Congress. India was declared a belligerent nation by Britian on September 3, 1939, and the British Indian administration was placed on a war footing. The war lasted 6 years, till September 1945. During this period there was a lull in national agitation.

The Congress, as a whole supported the democratic allied countries, led by Britian but resented the fact that it was not taken into consultation in declaring India a belligerent nation. In the circumstances, all that the Congress could do was to call for an immediate assurance from Britain, that independence would be given to India, as soon as the war emergency was over.

The British Government paid no heed to this demand. The Congress reacted by asking all provincial Congress ministries to resign (October 1939). When the Congress ministries resigned, the Muslim League observed 'The Deliverance Day' from Congress rule on 22nd December, 1939. This was an indication of the increasing animosity between the two organizations.

In March 1940, at its annual session in Ramgarh the Congress demanded complete independence and a Constituent Assembly to draft a constitution for free India. In the same month, the Muslim League at its Lahore session demanded a separate state for the Muslims of India. In August the Viceroy announced that his Executive Council would be expanded to include more Indians, and a war advisory council would be established. Both the Congress and the League rejected the offer.

In March 1942, the British Government sent Sir Stafford Cripps to India with proposals for a new constitution. The Cripps' proposals were found unsatisfactory and were rejected both by the Congress and the League. In May 1942, Gandhiji called on Britian to "Leave India to God. If this is too much, then leave her to anarchy".

In August 1942, the Congress working committee considered Gandhiji's call to Britain and passed the famous 'Quit India' resolution. If Britian did not take steps to quit India as soon as possible, the Congress proposed to start Civil Disobedience. The Government retaliated by arresting Gandhiji and all the members of the working committee and declared Congress an unlawful organization.

In 1945, Lord Wavell, the Viceroy, announced that he was holding a conference in Simla to consider the steps necessary to advance self-government for India in the near future. All Congress leaders, then in prison, were released. The Simla conference (June-July 1945) turned out to be a fiasco. But by the time, (July), a Labour Government came into power in Britain. The Labour Government took serious notice of the Indian situation.

The Labour Secretary of State for India, Lord Pethick-Lawrence announced that a parliamentary commission would be visiting India to negotiate the question of Indian independence. This delegation, later famous as the Cabinet Mission, announced its constitutional scheme, which implicitly recognised the right of the Muslims to have a state of their own. While the Muslim League accepted the proposals, the Congress rejected it.

While negotiations on the future constitution continued between the Congress and the League on the one side and with the Government on the other, the League suddenly changed its tactics. It retracted its acceptance of the Cabinet Mission Plan and declared August 16 (1946) as a Direct Action Day. It was an invitation for communal riots. The Muslims started slaughtering Hindus in all areas, where they were numerically superior. The Great Calcutta Killings of August 16 to 18 were the first of the riots. Then followed the killings in West Punjab, where the Muslims were in a majority. The Congress in desperation demanded the partition of Punjab.

Lord Mountbatten who succeeded Wavell as Viceroy in March 1947, boldly announced the partition of India. The provinces where the Muslims formed the majority were to be constituted into a separate state—Pakistan.* Thus, parts of Punjab (West Punjab) and Bengal (East Bengal) and the whole of the provinces of Sind, Baluchistan and the North West Frontier became Pakistan. The rest of India formed another State. The Indian Independence Act, passed by the British Parliament (July 1947), formalised the division of India into two fully independent states—India & Pakistan.

FATHER OF THE NATION

Mohandas Karamchand Gandhi (1869-1948), when he entered public life, was at first hailed as the Mahatma (Great Soul) and was generally called Mahatma Gandhi. Since his death he has been universally acclaimed as the Father of the Nation.

Gandhiji started his public career in South Africa, where the white race ruled and Indians and native Africans alike were treated as slaves and outcasts. He entered Indian public life through the Indian National Congress, which he dominated from 1920 onwards. He was the main architect of the Indian nation and is rightly called the Father of the Nation.

The important dates and events of his life are briefly described below:

1869: Oct. 2: Born at Porbandar, Kathiawar, India, son of Karamchand and Putlibai Gandhi. *1883:* Married Kasturba. *1888:* Sailed from Bombay for England to study law. *1891:* Summer: Returned to India after being called to the Bar. Began to practise law in Bombay and Rajkot.

1893: April: Sailed for South Africa to become lawyer for an Indian firm. Found himself subjected to colour discrimination. *1894: May:* Organized the Natal Indian Congress. *1899:* Organized Indian Ambulance Corps for the British in the Boer war. *1901:* With the family embarked for India.

1901-2: Travelled extensively in India, attended Indian National Congress meeting in Calcutta and opened law office in Bombay. *1902:* Returned to South Africa at the request of the Indian community. *1904:* Established the weekly journal 'Indian Opinion', Organized Phoenix Farm near Durban.

1906: Sept: First 'satyagraha' campaign in protest against proposed Asiatic ordinance directed against Indian immigrants in Transvaal. *1907: June;* Organized 'Satyagraha' against compulsory registration of Asiatics (The Black Act).

1908: Jan: Stood trial for instigating 'satyagraha' and was sentenced to two months imprisonment in Johannesburg jail (his first imprisonment). Summoned to consult General Smuts at Pretoria; compromise reached; was released from jail. *Feb:* Attacked and wounded by Indian extremist for settlement with Smuts. *Aug:* After Smuts broke agreement, second 'satyagraha' campaign began with bonfire of registration certificates.

1909: Feb: Sentenced to three months imprisonment in Volksrust and Pretoria jails. *June:* Sailed for England to present Indians' case. *1910: May:* Established Tolstoy Farm near Johannesburg. *1913: Sept:* Helped campaign against nullification of marriages not celebrated according to Christian rites. Third 'satyagraha' campaign. Led 2,000 Indian miners from New Castle across Transvaal border. *Nov:* Arrested for third time in four days. *Dec:* Released unconditionally in expectation of a compromise.

1914: July: Returned to India, leaving South Africa for ever. *1915: May:* Established Satyagraha Ashram near Ahmedabad.

1917: Moved Ashram to new site on Sabarmati River. Led successful 'satyagraha' campaign for rights of peasants on indigo plantations in Champaran. Defied order to leave area in April, was arrested at Motihari and tried, but case was withdrawn.

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* The name Pakistan and the idea of a partition were first suggested by Chowdhry Rahmat Ali, a student of the Cambridge University in 1930. In his pamphlet 'Now or Never', published in 1933, Rahmat Ali advocated the idea of partition. At the time, however, Muslim leaders scorned the idea as childish.

1918: Feb: Led strike on millworkers at Ahmedabad. Millowners agreed to arbitration after his three-day fast (his first fast in India). *March:* Led 'satyagraha' for peasants in Kheda). April: Organized nationwide hartal—suspension of activity for a day—against the Rowlatt Bills. Fasted at Sabarmati for three days in penitence for violence and suspended 'satyagraha' campaign which he called a 'Himalayan miscalculation' because people were not disciplined enough. Became Editor of English weekly 'Young India' and Gujarati weekly 'Navajivan'.

1920: April: Elected president of All India Home Rule League. Successfully urged resolutions for a 'satyagraha' campaign of non-cooperation.

1921: Resolved to wear only a loin cloth to propagate homespun cotton and to signify his identification with the people. Mass civil disobedience, thousands went to jail. Gandhi invested with 'sole executive authority' on behalf of Indian Congress.

1922: Suspended mass disobedience because of violence at Chawri Chara and undertook five-day fast of penance at Bardoli. Arrested at Sabarmati on charge of sedition for articles in 'Young India'. Pleaded guilty in a famous statement at the 'great trial' in Ahmedabad before Judge Broomfield. Sentenced to six years' imprisonment in Yervada jail.

1929: Arrested for burning foreign cloth in Calcutta and fined one rupee. *1929 Dec:* Congress session at Lahore voted for complete independence and a boycott of the legislature. *January 26* proposed as National Independence day. Third all-India 'satyagraha' campaign.

1930: March 12: Set out from Sabarmati with 79 volunteers on historic Salt March 200 miles to sea at Dandi. *April 6:* Broke salt law by picking a handful of salt up at seashore. Arrested by armed policemen at Karadi and imprisoned in Yervada jail without trial. One hundred thousand persons arrested.

1931: Jan: Released unconditionally with 30 other Congress leaders. *March:* Gandhi-Irwin (Viceroy) Pact signed, which ended civil disobedience. *Aug:* Sailed from Bombay for the Second Round Table Conference in London. *Dec:* Returned to India. Authorised by Congress to renew 'satyagraha' campaign (fourth nation wide effort).

Homage to the Mahatma: The 8-foot statue of Gandhiji unveiled in New York's Union Square on October 2, 1986, on the occassion of his 117th birth anniversary.

1932: Jan: Arrested in Bombay with Sardar Patel and detained without trial at Yervada prison. *Sept. 20:* Began 'fast unto death' while in prison in protest against British action giving separate electorate to untouchables. *Sept. 26:* Concluded "fast" in the presence of Rabindranath Tagore after the British accepted 'Yervada Pact'.

1933: Began weekly publication of 'Harijan' in place of 'Young India'. *July:* Disbanded Sabarmati Ashram which then became centre for removal of untouchability. *Nov:* Began ten-month tour of India to help end untouchability.

1934: Oct: Launched All India Village Industries Association. *1940: Oct:* Launched limited, individual civil disobedience campaign against Britain's refusal to allow Indians to express their opinions regarding World War II. 23,000 persons imprisoned within a year.

1942: : Met with Sir Stafford Cripps in New Delhi but called his proposals 'a postdated cheque'; these were ultimately rejected by Congress. Congress passed 'Quit India' resolution—the final nation-wide "Satyagraha campaign" with Gandhi as the leader. Arrested with other Congress leaders and Kasturba and imprisoned in Aga Khan Palace, near Poona. Revolts in many parts of the country.

1943: Feb 10: Began fast at Aga Khan Palace to end deadlock between Viceroy and Indian leaders.

1944: Feb 22: Kasturba died in detention at Aga Khan Palace at the age of 74. *May 6:* After decline in health, was released unconditionally from detention (this was his last imprisonment; he had spent 2,338 days in jail during his life-time).

1946: Began four-month tour of 49 villages in East Bengal to quell communal rioting over Muslim representation in provisional government.

1947: : Toured Bihar to lessen Hindu-Muslim tensions. Began conferences in New Delhi with Lord Mountbatten and Jinnah. *May:* Opposed Congress decision to accept division of country into India and Pakistan. Fasted and prayed to combat riots in Calcutta as India was partitioned and granted Independence. Visited Delhi and other neighbouring areas to stop rioting and to visit camps for refugees.

1946 onwards, Gandhiji's efforts were concentrated on effecting Hindu-Muslim accord. Hindu-Muslim riots had broken out all over India, ever since the League President, Jinnah, rejected the Cabinet Mission Plan and proclaimed August 16, 1946 as Direct Action Day. It was never clarified what Direct Action really involved. But the Muslims responded to this call with vengeance. The great Calcutta killings of August 16/18 were the first bitter harvest of the Direct Action Day. Gandhiji visited many of these areas—Noakhali for instance—to restore communal amity

1948 Gandhiji undertook a fast for 5 days to bring about communal unity. On January 30, while holding a prayer meeting at Birla House, Delhi, Gandhiji was shot dead by a Hindu fanatic Vinayak N. Godse, who was deadly opposed to Gandhiji's efforts to bring about Hindu-Muslim amity. Thus ended the life of the greatest Indian since The Buddha.

FREEDOM AND AFTER

British Government announced on Feb. 20, 1947 its intention to quit India by June 1948. Lord Mountbatten was named Viceroy to arrange the transfer of power. He assumed office on March 24 and broadcast his plan for a partition of India.

Here is a chronology of events.

1947: British Parliament passes the India Independence Act (July 1) and fixes Aug. 15 for the transfer of power. Partition of India into India & Pakistan. Power transferred to India and Pakistan. Lord Mountbatten becomes Governor General of India and M. A. Jinnah, Governor General of Pakistan (Aug. 15).

1948: Assassination of Mahatma Gandhi (Jan. 30). Death of M. A. Jinnah (Sept. 11). The Government of India occupies the Nizam's dominions (Hyderabad State).

1949: Constitution of India adopted by the Constituent Assembly (Nov. 26).

1950: Constitution of India comes into force (Jan. 26). Sardar Patel dies (Dec. 15).

1951: The first general election in India. First amendment to the constitution.

1952: Dr. Rajendra Prasad elected Rashtrapati (Head of State).

1954: Panch Sheel agreement between China and India.

1955: Avadi session of the Indian National Congress adopts a socialistic pattern of society for India.

1956: Life Insurance nationalized.
States Reorganization Act.

1957: Second General Election. Rajendra Prasad re-elected for a second term.

1958: Metric system of weights and measures introduced.

1959: Swatantra Party formed.

1960: Bombay bifurcated into Maharashtra and Gujarat States.

1961: India occupies the Portuguese enclaves of Goa, Daman and Diu.

1962: Third general election in India. Dr. Radhakrishnan elected President. Nehru forms the third congress ministry. China attacks India on the northern border (Sept. 19).

1963: Gold Control Order. Rajendra Prasad dies (Feb. 28). Nagaland becomes a state of the Indian Union.

1964: Jawaharlal Nehru, dies, (May 27). Lal Bahadur Shastri becomes P.M. Communist Party of India splits into right and left.

1965: Indo-Pakistan war in the Rann of Kutch. Cease-fire in the Rann (June 30).

1966: Tashkent meeting between Lal Bahadur Shastri and Ayub Khan. Agreement reached. Shastri dies at Tashkent (Jan. 11). Indira Gandhi elected Prime Minister (Jan. 19). Dr. Bhabha dies in a plane accident. The States of Haryana and Punjab come into being.

1967: Fourth general election. Indira Gandhi elected Prime Minister. Dr. Zakir Hussain elected President. Earthquake at Koyna (Maharashtra).

1969: Madras State changes its name to Tamil Nadu. Zakir Hussain dies (May 3). V. V. Giri becomes Acting President. Nationalization of 14 leading banks by Presidential Ordinance (July 19). Giri elected President (Aug. 20). G. S. Pathak Vice President. Cong. party splits. Indira Gandhi forms her own Congress with Jagjivan Ram as President.

1970: Supreme Court holds nationalization of banks illegal. Presidential ordinance re-validates nationalization (Feb. 14). State of Meghalaya comes into being (April 2). Privy purses and special privileges of former Indian rulers abolished. Dr. C. V. Raman dies (Nov. 21).

1971: Himachal Pradesh becomes a State (Jan. 25). K. M. Munshi dies (Feb. 8). Indira Congress wins the mid-term elections for Lok Sabha. Indira Gandhi becomes P.M. General Insurance nationalised (May 13). Indo-Pakistan war begins. Pakistan attacks India in the west (Dec. 3). India recognizes Bangladesh. Indian army marches into Bangladesh, joins hands with Mukhti Bahini of Bangladesh. Pakistan army in Bangladesh surrenders to the Indian Commander. Indo-Pak war ends (Dec. 17).

1972: Manipur, Meghalaya and Tripura become states of the Indian Union. Arunachal Pradesh and Mizoram become Union Territories (Jan. 20). Election to State Assemblies (March). Dacoits of Madhya Pradesh surrender to Jaya Prakash Narain (April). Government of India announces increase of minimum bonus to workers from 4% to 8.33% (Sept. 18). C. Rajagopalachari dies (Dec. 28).

1973: Justice Ajit Nath Ray named Chief Justice of the Supreme Court, superseding the three seniormost judges. Justices Shelat, Hegde and Grover resign in protest. Mohan Kumaramangalam, Central Minister, dies in an air crash near Delhi (May 31). Mysore changes its name to Karnataka (Nov. 1). E. V. Ramaswamy Naicker (EVR), founder of the Dravida Kazhakam, dies (Nov. 24).

1974: Jaya Prakash Narain starts 'Citizens for Democracy' movement for cleansing the administration and strengthening democracy. Atomic 'device' exploded at Pokran in Rajasthan (May 18). J. P. Narain leads an agitation for dissolution of the Bihar Assembly. Compulsory Deposit Scheme announced (July 17). Fakhruddin Ali Ahmed elected President (Aug. 20). B. D. Jatti Vice-President. Sucheta Kripalani dies (Dec. 1)

1975: L. N. Mishra, Railway Minister, and 22 others hurt in bomb blast at Samastipur Railway Station. L. N. Mishra dies. (Jan. 2). India accords recognition to the Palestine Liberation Organization (10). Oil struck in third Bombay high (11). Sheikh Abdullah becomes Jammu and Kashmir Chief Minister (24). J.P.'s 'People's March' to Parliament. India recognizes Sihanouk Government in Cambodia. Sikkim, in referendum, votes for full statehood in India, for abolition of the institution of Chogyal (April 15). Dr. S. Radhakrishnan, former President, dies (Apr. 17). India ushered into space age: satellite 'Aryabhatta' launched from a cosmodrome in Soviet Union (19). Sikkim joins Indian Union as the 22nd State (May 16). Farakka Barrage dedicated to nation (21). Mrs. Indira Gandhi's election set aside by Allahabad High Court (June 12). Justice V. R. Krishna Aiyar of the Supreme Court gives conditional stay of the Allahabad High Court judgement (24). Opposition leaders announce nation wide satyagraha from June 29 to force Mrs. Gandhi out of office (26). President declares emergency. J.P. and a number of opposition leaders and dissident congressmen arrested (26). Prime Minister announces 20-point economic programme. New ordinances promulgated (July 1). The RSS, Anand Marg, Jamat-i-Islami and 23 other organizations banned. Parliament approves Conservation of Foreign Exchange and Prevention of Smuggling Activities Act (COFEPOSA). Parliament approves MISA bill. Constitution (39th Amendment) Bill 1975, placing election of the President, the Vice President, the PM and the Speaker of the Lok Sabha beyond the scrutiny of the judiciary, approved by Parliament. Rajya Sabha adopts Constitution (41st Amendment) bill extending immunity from criminal and civil proceedings to the Prime Minister. Calcutta and Madras on TV map of India. Ordinance promulgated for grant of national permits for goods trucks (Sept. 26). Government announces 12-point programme for making prohibition policy a success (Oct. 1). K. Kamaraj dead (2). 'Bonded' labour abolished by Ordinance (24). P.M.'s election upheld by the Supreme Court (Nov. 7). Naga problem settled (11). J.P. set free (Dec. 4). 75th plenary session of the congress opens at Chandigarh. D. K. Barooah elected Congress President.

1976: Baliram Bhagat elected Lok Sabha Speaker (Jan. 6). President suspends seven freedoms guaranteed by Article 19 (8). Burmah Shell nationalized, becomes Bharat Refineries Limited (24). Lok Sabha's life extended by one year (Feb. 4). Urban Ceilings Act comes into force (17). IA Boeing 737 to Bombay via Jaipur hijacked to Lahore. 89 killed in IA plane crash at Bombay airport (Oct. 12). Lok Sabha passes the 42nd Constitution Amendment Bill making India a Socialist Secular Republic and laying down fundamental duties for citizens (Nov. 2). Lok Sabha votes to extend its own life by another year (5).

1977: The President dissolves Lok Sabha (Jan. 18). Government relaxes rules of Emergency to permit normal political activity and electioneering. Four parties—Congress (O), Jan Sangh, Bharatiya Lok Dal and the Socialist Party—agree to work as one party under the name *Janata Party*. President Fakhruddin Ali Ahmed passes away in New Delhi. B. D. Jatti sworn in Acting President (Feb. 11). India's second earth station for satellite communication at Dehra Dun inaugurated (25). Polling in the Lok Sabha election starts (Mar. 16). Internal Emergency promulgated on June 25, 1975 withdrawn (21)

Janata and its allies gain absolute majority in Lok Sabha. Indira Gandhi resigns (22). Ban on RSS and 26 other organizations lifted. A. K. Gopalan, Marxist leader, dies in Trivandrum. The RSS chief Deoras released. Morarji Desai elected leader of Janata Party and sworn in Prime Minister (24). Sixth Lok Sabha session begins (25). Sanjiva Reddy elected Speaker of the Lok Sabha. Government revokes the external emergency promulgated on December 3, 1971.

The Acting President B. D. Jatti dissolves the Legislative Assemblies of nine Congress-ruled States, Bihar, Haryana, Himachal Pradesh, M. Pradesh, Orissa, Punjab, Rajasthan, Uttar Pradesh and West Bengal and places them under President's rule. Four Parties—Congress (O) (Old Congress as distinguished from Indira Congress), Jan Sangh, Bharatiya Lok Dal and Socialist Party—at their separate sessions decide to dissolve themselves and merge into a single party (30). Chandra Shekar chosen President of the Janata Party (May 5).

K. Brahmananda Reddi elected President of the Indian National Congress. The Election Commission recognizes the Janata Party as a National Party. Poll notifications for ten states and two union territories issued. Janata gains absolute majority in Haryana, Himachal Pradesh, Orissa, U.P., M.P., Bihar and Rajasthan Assemblies and Delhi Metropolitan Council. Akali-Janata-CPM alliance wins absolute majority in Punjab. The All-India Anna DMK gets absolute majority in Tamil Nadu. No party gets absolute majority in Pondicherry. C.P.M. gains absolute majority in West Bengal. Government decides to discontinue national civilian awards (July 10).

Sanjiva Reddi elected (unopposed) President of India. K. S. Hegde unanimously elected Lok Sabha Speaker (21). The Planning Commission decides to introduce Rolling Plan concept (Sept. 10). Variable energy cyclotron commissioned in Calcutta (15). Indira Gandhi arrested in New Delhi by the CBI on charges of corruption and released unconditionally. The External Affairs Minister A. B. Vajpayee addresses UN General Assembly in Hindi, the first ever. India and Bangladesh formally sign Farakka agreement in Dacca. The silver jubilee time capsule in the Red Fort dug out (Dec. 8).

1978: Air-India Boeing 747 with 213 persons aboard crashes into the sea off Bombay coast (Jan. 1). "M.V. Chandragupta", bulk carrier of the Shipping Corporation of India, with 69 persons aboard sinks in the Pacific Ocean (6). A Minorities Commission is constituted (15). Currency notes of the denominations of Rs. 1,000, Rs. 5,000 and Rs. 10,000 are demonetised (16).

The Indian National Congress(I) recognized as a national party and allotted the election symbol "hand". Malayalam poet Mahakavi G. Sankara Kurup dies in Trivandrum (Feb. 2). Justice Y. V. Chandrachud is sworn in as the Chief Justice of India. Swaran Singh is elected Congress President (Mar. 1). The Shah Commission's interim report is submitted to the Government (27). The Government decides to abolish preventive detention (30).

The Congress (I) is recognised as the main opposition and its leader, C. M. Stephen, as leader of the opposition in the Lok Sabha (April 12). *Samachar* splits and its four constituents—PTI, UNI, Samachar Bharati and Hindustan Samachar—start functioning separately (14). Ashapurna Devi, Bengali Novelist wins 1976 Jnanapith Award (26). A second Press Commission is announced (14). Prime Minister Morarji Desai addresses the special session of the UN General Assembly (June 13). The Karakoram Highway, linking Gilgit in Pakistan-occupied Kashmir with Sinkiang in China, is opened (18).

Patna High Court sets aside the sessions court judgement sentencing the founder-head of the Ananda Marg, P. R. Sarkar, alias Anandamurti, and four others to imprisonment for life (July 4). Mother Teresa is presented with the Order of the British Empire. Justice H. R. A. Ansari is appointed chairman of the reconstituted Minorities Commission (26). The Shah Commission's final report.

The Privileges Committee of the Lok Sabha holds Indira Gandhi guilty of breach of privilege and contempt of the Lok Sabha for obstructing Government officials from collecting information for a question on Maruti in 1975 (21).

The Supreme Court declares the Parliament has the legislative competence to create special courts to try cases involving emergency offences (Dec. 1). The Lok Sabha expels Mrs. Indira Gandhi, former Prime Minister, from the House and sentences her to imprisonment for a term lasting until its prorogation (19). Indira Gandhi is released from jail (26).

1979: Rohini-200, first monsoon experimental rocket, launched from Thumba (Jan. 6). Jnanapith award to S. H. Vatsyayan, Hindi poet and novelist (20). World Sanskrit Conference in Allahabad. The Election Commission declares the Chickmagalur seat in Lok Sabha vacant following the expulsion of Indira Gandhi (30). The Cellular Jail in Andaman and Nicobar declared a national memorial (Feb. 11). Sanjay Gandhi and the former Information and Broadcasting minister V. C. Shukla sentenced to two years in jail for the destruction of the film "Kissa Kursi Ka" (27).

Cyclone hits coastal Andhra Pradesh—widespread damage to life and property (12). Gupta commission indicts Sanjay Gandhi and others on irregular Maruti deals (31). Soviets launch India's second satellite "Bhaskara" (June 3). The Congress(I) loses main opposition status in the Lok Sabha to the Congress(U). The Congress tables no-confidence motion against the Janata government (July 11).

Morarji Desai resigns as Prime Minister (15). Jagjivan Ram elected Janata parliamentary party leader. Charan Singh is Prime Minister heading Janata(S)-Congress coalition and Jagjivan Ram is leader of the opposition in the Lok Sabha (17). M.V. Kairali, the only ship of the Kerala State Shipping Corporation, disappears in Gulf waters. The crew of 51 missing (20). Satellite launch vehicle fails to put 40-kilo payload into earth orbit, plummets into sea (Aug. 10). Damburst floods Morvi and Lilapur in Gujarat. Over 1000 dead (12). Mrs. Gandhi withdraws support to the Charan Singh government (20). President dissolves Parliament, orders year-end general elections and asks Charan Singh to head a caretaker government (21). M. Hidayatullah, consensus choice of political parties, as Vice-President of India (31). Nizam jewellery declared national treasure. (Sept. 21). Operation (Milk) Flood-II launched (Oct. 2). Jaya Prakash Narayan dies (8). Supreme Court stays the execution of all death sentences. Mother Teresa awarded Nobel Peace Prize (17).

THE TURBULENT EIGHTIES

1980: Polling in the Seventh General Election ends (Jan. 6). Devaraj Urs, Karnataka Chief Minister, resigns, following reverses in elections (7). Care-taker Prime Minister Charan Singh informs the President of his desire to resign (9). Mrs. Indira Gandhi's Congress (I) wins two-thirds majority in the new Lok Sabha (10). Gundu Rao sworn in Congress (I) Chief Minister of Karnataka (12). Mrs. Gandhi's new Ministry at centre sworn in; R. K. Dorendra Singh Chief Minister of Manipur (14). D. Ramachandran becomes Chief Minister of Pondicherry and Pratap Singh Rane, Chief Minister of Goa (16). Assam agitation turns violent; Army called out; Oil India Manager stoned to death; Gangong Apsong sworn in as Chief Minister of Arunachal Pradesh (18). Assembly elections in Kerala; Left Democratic Frront wins absolute majority (21). Haryana's Janata CM Bhajan Lal with 37 MLAs defects to Congress (I), continues as Congress (I) Chief Minister; Bal Ram Jakhar elected Lok Sabha Speaker (22). E. K. Nayanar forms Government in Kerala (24). Civilian Awards stopped by the Janata Government revived; Mother Teresa awarded Bharat Ratna (30).

Janata Ministry headed by Shanta Kumar in Himachal Pradesh resigns; a Congress (I) ministry headed by Ramlal takes office (Feb. 14). Total solar eclipse (15). State Assemblies in Tamil Nadu, Maharashtra, U.P, Bihar, Orissa, M.P, Rajasthan, Punjab and Gujarat dissolved, ministries dismissed and President's rule imposed (17). Forty-six defence personnel killed in a plane crash in Agra. C. M Stephen wins Lok Sabha by-election from Gulbarga Constituency (23). Jagjivan Ram resigns as leader of Janata Parliamentary Party (27). C. M. Stephen made Cabinet Minister at Centre; three more Ministers of State added (Mar. 3). Jagjivan Ram "quits" Janata Party; Veerendra Patil made Cabinet Minister. Prakash Padukone becomes the first Indian to win All-England Badminton Championship (23).

Charan Singh, Chairman, expels Raj Narain from Lok Dal; Raj Narain forms a new Janata (S) Party (Apr. 2). Janata Party splits again; members with RSS links form Bharatiya Janata Party with A. B. Vajpayee as President (6). Sanjay Gandhi and V. C. Shukla acquitted by Supreme Court in the *Kissa Kursi Ka* case (11). Six more private sector banks nationalized (15). Jamir sworn in as Nagaland CM. (18). Baba Gurbachan Singh, Nirankari Chief, assassinated; son named new chief (24). Assamese poet Birendra Kumar wins 1979 Jnanapith Award (26). Supreme Court bans handcuffing of prisoners (30).

Sobha, the best actress award winner, dies at Madras (May 1). Supreme Court rules Parliament has no unlimited power to amend constitution; court also upholds validity of death sentence (9). Bahuguna quits Congress (I) and resigns from Lok Sabha (20).

AIADMK wins in Tamil Nadu Assembly election; Congress (I) wins in U.P, M.P, Gujarat, Rajasthan, Punjab, Maharashtra and Orissa (June 1). 15 more ministers added to Union Cabinet; Darbara Singh sworn in as Punjab CM and Dr. Jagannath Misra as Bihar CM (8). M. G. Ramachandran's second AIADMK Ministry takes office (9). Sanjay Gandhi appointed Congress General Secretary (13). Sanjay dies in plane crash in New Delhi (23). Former President V. V. Giri passes away (24).

India recognizes Heng Samrin Govt. in Kampuchea (July 7). Congress (I) gets absolute majority in Rajya Sabha (12). India orbits satellite: SLV-3 Rocket puts Rohini satellite in orbit (18). India regains Olympic hockey title (29).

Allahabad High Court dismisses election petition aganist Mrs. Gandhi (Aug. 12). Kudremukh Project in Karnataka completed (23).

Second Commonwealth Regional Heads of Government Conference in New Delhi (Sep. 4). T. Anjiah becomes Andhra Chief Minister (Oct. 11). Centre nationalizes Maruti company (14). Eleven more ministers added to Union Cabinet (19). Union Railway Minister Kamalapathi Tripathi resigns (25). President dimisses Tamil Nadu Governor Patwari; Saddiq Ali named successor (26). National Integration Council constituted (Nov. 6). Centre takes over Auroville (12).

Parliament condemns blinding of undertrials in Bhagalpur; Supreme Court orders enquiry into Bhagalpur blinding; former Railway Minister K. Hanumanthiah dies (Dec. 1).

Mrs. Anwara Taimur heads a new ministry in Assam (6). Soviet President Leonid Brezhnev arrives in New Delhi (8). 1980 *Jawaharlal Nehru Award* for international understanding for Mrs. Barbara Ward (23). 1981: World Tamil Conference opens in Madurai (Jan. 4). Mr. B. K. Nehru appointed Governor of Jammu & Kashmir (15). Central Government offers full statehood to Mizoram (17).

India's 'Akrosh' and Bulgaria's 'Unknown Soldier's Patent Leather Shoes' share the Golden Peacock award for the best film at the 8th International Film Festival (Jan. 17). The Jammu & Kashmir Chief Minister Sheikh Abdullah names son Dr. Farooq Abdullah his successor (23). Third airline feeder service Vayudoot inaugurated (26).

Dr. Madhuri Shah appointed Chairman of the University Grants Commission (Feb. 3). Sixty-one die in circus fire in Banglore (7). Forty-four ministers take office in Andhra Pradesh. Census operations begin (9). Railway fares and freight to cost 10 to 15 per cent more. M. H. Beg, former Chief Justice of India, named Chairman of the Minorities Commission in succession to Mr. M. A. Ansari (27). Mrs. Gandhi asks the Civil Supplies Minister V. C. Shukla to resign (Mar. 19). Minting of three, two and one paise coins discontinued (20). Tamil Nadu Government relaxes Prohibition (21).

Bengali film "Aakaler Sandhane" wins 1980 Swarna Kamal award for best film; Dada Saheb Phalke award for best film goes to P. Jairaj (Apr. 7). S. A. Dange, expelled from the Communist Party of India. The 105-day-old anti-reservation agitation by Gujarat students and junior doctors withdrawn unconditionally (13). The Finance Minister R. Venkataraman annoucnes new concessions to export-oriented units (22).

Ministry led by Capt. W. A. Sangma, Congress(I), sworn in in Meghalaya (May 8). Y. B. Chavan resigns from Congress(U) (26). More than 15 million hit by drought in Rajasthan (29). SLV-3 puts Rohini in orbit from Sriharikota (31).

General K. V. Krishna Rao assumes charge as the Chief of Army Staff (June 1). Malayalam writer S. K. Pottekkat wins the Jnanapith award for 1980, for his autobiographical novel 'Oru Desathinte Katha' (7). Rajiv Gandhi and Begum Abida Ahmed win by-elections from UP constituencies (15). APPLE, India's first geostationary experimental telecommunications satellite launched into orbit from Kourou, French Guiana. Air Marshal Dilbagh Singh is appointed Chief of Air Staff (24). Assam Chief Minister Mrs. Anwara Taimur resigns (28). President's rule imposed in Assam (30).

Over 350 die in liquor tragedy in Bangalore and Mysore (July 7). Govt. increases prices of petrol, diesel, kerosene, cooking gas and furnace oil (10). Shiv Charan Mathur sworn-in in place of Jagannath Pahadia as Rajasthan Chief Minister (13). Toddy and arrack shops reopened in Madras. India's first three-axis stabilized experimental communication (APPLE) put in its slot (16). Worst deluge in centuries in Rajasthan—Jaipur cut off (19). TV programme successfully relayed through APPLE (22). Prakash Mehrotra appointed Governor of Assam and Meghalaya and S. M. H. Burney, Governor of Manipur, Tripura and Nagaland (23).

Jagjivan Ram heads breakaway Congress(U) and calls new party Congress(J) (Aug. 5). Fifty persons given life terms for killing 14 Harijans of Pipra village in Patna district (5). The Governor of Rajasthan, Mr. Raghukul Tilak dismissed (8). Prime Minister Indira Gandhi leaves for African tour. Mr. Sharad Pawar, Maharashtra leader, elected President of Congress(U) (25). Air Chief Marshal Dilbagh Singh succeeds Air Chief Marshal Latif as Air Chief (30).

The first batch of 18 members of a pilgrim party leaves for Kailas and Manasarovar in Tibet—the first batch to go there in 20 years. Lala Jagat Narain, veteran journalist and freedom fighter, shot dead in Ludhiana (Sept. 9). B. D. Pande appointed Governor of West Bengal to succeed T. N. Singh who resigned (10). Tamil University inaugurated in Thanjavur (15). Sant Jarnail Singh Bhindranwale arrested in connection with Lala Jagat Narain's murder; violence follows; eight die in police firing (20). Oil struck in off-shore well in the Cauvery basin. Mrs. Indira Gandhi in Fiji (25). Five Khalistan activists hijack Indian Airlines Boeing 737 to Pakistan with 117 passengers; 66 freed on arrival in Lahore (29). Pakistan Commandos dressed as cleaners overpower five hijackers. Delhi asks Pakistan to extradite hijackers (30).

Activists of the Dal Khalsa who master-minded the hijacking of Indian Airlines plane arrested (Oct. 1). Bhindranwale released from judicial custody (15). Congress(S) pulls out of ruling Marxist-led Left Democratic Front in Kerala. Bombay High Court freezes funds of the Indira Pratibha Prathisthan and the Konkan Unnati Mitra Mandal (16). Twenty-one-month-old Left United Front Ministry led by Mr. E. K. Nayanar, resigns in Kerala (Oct. 20). Kerala under central rule (21).

IMF board clears 5 billion SDR loan for India (Nov. 10). Mrs. Gandhi in Paris. France offers easy credit to buy Mirage Fighters. 1981 Nehru Award for Prof. and Mrs. Gunnar Myrdal (12). Vice Admiral Dawson named new Chief of Naval Staff (18). Bhaskara is launched from Soviet Cosmodrome (20). Sri Krishna Deva Raya University inaugurated in Anantapur (22). Air India plane hijacked from Seychelles; crew and passengers freed in Durban.

Forty-five people, majority of them children, killed in a stampede in Qutub Minar, Delhi (Dec. 5). Ry. freight rates raised by 10 to 15 per cent. India-China talks open in Beijing (10). Congress (S) unit in Kerala defies national leadership and decides to join Ministry headed by Congress(I) (23). New Madras-Penang undersea cable commissioned.

New Government led by the Congress(I) leader Karunakaran, installed in Kerala. Supreme Court upholds law for detention without trial but lays down guidelines (Dec. 28). Congress (I) loses nine of 29 seats in elections to the Andhra Pradesh Legislative Council, and the by-election to the Lok Sabha from Sagar in Madhya Pradesh; wins the Kosta (MP) Assembly seat (29). Supreme Court holds transfer of judges valid.

1982: Firing on Assam agitators—four killed. Film actor David Abraham dies in Toronto. 21-member Indian team lands on Antarctica. Industrialist B. M. Birla passes away (Jan. 11). Bombay High Court finds allegations against the Chief Minister A. R. Antulay justified. Antulay resigns. Jyotirmoy Basu CPI(M) M.P. dies in Jaipur (12). K. C. Gogoi sworn in as Assam Chief Minister (13). Prime Minister reshuffles cabinet. Pranab Mukherjee gets Finance; Defence for R. Venkataraman (15). Bombay textile workers go on strike (18). Babasaheb Bhosale chosen Maharashtra Chief Minister. Mizo National Front and allied organizations declared illegal (19). 14-member Assam Ministry sworn in (22). Mohan Lal Sukhadia, former Chief Minister of Rajasthan, dies (26). Bihar Govt. suspends 40 police and medical officers in the Bhagalpur blinding case (29). Billa and Ranga hanged for the murder of the Chopra children (31).

Kerala Speaker A. P. Kurian of the CPI(M) and the Deputy Speaker, M. J. Zakaria Sait (AIML) resign and join opposition. A. C. Jose takes over as Speaker (Feb. 1). Statue of Bahubali consecrated at Dharmastala (3). Anjiah announces decision to quit as AP Chief Minister (16). Sivaji Ganesan, Tamil film actor, nominated to Rajya Sabha (19). B. Venkataram to succeed Anjiah as Andhra Pradesh Chief Minister (22).

Central Budget: Massive tax effort to raise Rs. 590 crores. Air Chief Marshal H. Latif appointed Maharashtra Governor. Admiral Dawson takes over as Chief of Naval Staff (March 1). Press Council reconstituted. Kerala Congress Mani group withdraws support: Crisis in Government (15). President's rule in Kerala (17). President's rule in Assam also; Assembly dissolved. Acharya J. B. Kripalani (94) dead (19). N. T. Rama Rao, film artist, forms new party Telugu Desam in Andhra Pradesh (21). Prof. K. M. Chandy appointed Pondicherry Lt. Governor (22). The first Indian-assembled Jaguar aircraft by HAL, Bangalore, test-flown (31).

India's satellite INSAT-1A placed in orbit; Snag detected (Apr. 10). Jnanapith award for Amrita Preetham, Punjabi writer (11). Dr. Chenna Reddy appointed Punjab Governor (12). INSAT-1A moves to parking slot (21). Karnataka PCC(S) led by Devaraj Urs severs link with parent body, the AICC(S), and forms a regional party (28). Mrs. Accamma Varkey (73), freedom fighter and Cong. MLA in former Travancore-Cochin Assembly, dies (May 5). Karnataka Kranti Ranga led by Devaraj Urs comes into being (10). Elections for Assemblies held in West Bengal, Haryana, Himachal Pradesh and Kerala. Jyoti Basu is West Bengal CM, Karunakaran in Kerala, Bhajan Lal in Haryana and Ram Lal in H.P. (19). H. N. Bahuguna re-elected to Lok Sabha from Garhwal constituency (22). Cabinet approves Defence Minister's recommendation to set up the proposed Naval Academy at Ezhimala, Kerala (29).

D. Devaraj Urs, former Karnataka Chief

Minister, dies (6). Division Bench of the Bombay High Court dismisses appeal filed by former Maharashtra Chief Minister A. R. Antulay against the finding holding Antulay guilty of arbitrary allotment of cement (10). R. K. Trivedi, Central Vigilance Commissioner, new Chief Election Commissioner (16). 19 persons killed and 25 injured in an Air India Boeing 707 from Singapore via Madras crash at Bombay.

Good deposit of oil struck at Enuguvani Lanka in Razole structure of Godavari onshore (June 27). MGR inaugurates Tamil Nadu's nutritious noon meal programme benefitting an estimated 63 lakh poor children (July 1). Katherine Mary Hellman (82), a close associate of Mahatma Gandhi and popularly known as Sarla Behn, dies (8). Mira Behn (90), disciple of Mahatma Gandhi, dies (20). Zail Singh sworn in President (25). Petroleum Minister P. Shiva Shanker tells Parliament that the controversial Kuo Oil deal file was 'mislaid' by the Special Assistant to the Prime Minister (28). Manibhai Bhimbai Desai wins Magsaysay Award for Public Service for 1982 (31).

Fire breaks out in the Bombay High offshore oil well where a blow-out occurred a few days earlier (Aug. 2). Indian Airlines Boeing 737, from New Delhi to Srinagar hijacked; hijacker overpowered, all passengers safe.

Chand Prasad Bhatt, Indian environmentalist, gets Magsaysay Award for Community Leadershipt (Aug. 4). Bombay High oil well fire off. S. K. Pottekkat, (69), writer, Jnanapith Award winner and former M.P. dies (6). Manmohan Singh, Member Secretary, Planning Commission, appointed Governor of Reserve Bank (10). Arun Shourie, named for the 1982 Magsaysay Award for journalism, literature and creative communication arts (12). Investment of Rs. 269 crore with a foreign exchange component of Rs. 89 crore, approved for the Maruti project in collaboration with Suzuki Motor Company of Japan (17). Sixty die after consuming adulterated liquor at Vypeen island in Cochin (Sept. 4). INSAT-1A turned off (5). Jammu and Kashmir Chief Minister Sheikh Abdullah (77) dies (7). Earth stations at Delhi, Madras, Port Blair, Aizawl and Leh put into operation through Intelsat (10).

India leases Tin Bigha to Bangladesh, the sovereignty resting with India (Oct. 7). The Air Force celebrates 50 years (8). H. V. Kamath, freedom fighter and parliamentarian, dies (9). J. R. D. Tata, father of Indian civil aviation, pilots the De Havilland Leopard Moth from Karachi to Bombay—a feat he performed 50 years ago (15). Gandhiji's private secretary Pyare Lal dies (27).

Gen. Zia-ul-Haq of Pakistan in New Delhi. Agreement to set up a joint commission. Ravi L. Kirloskar, (65) industrialist, dies (Nov. 4). C. Narayana Pillai (80), freedom fighter, writer, journalist and former MP dies in Trivandrum. (14). Acharya Vinobha Bhave (88) dies (15). Diplomat K. P. S. Menon (84) dies (21).

Congress led by A. K. Antony merges with Congress-I in Mrs. Gandhi's presence (Dec. 13). Manoranjan Guha, journalist and freedom fighter, dies (16). India and Pakistan agree to set up ministerial level joint commission (23). The 114-year-old English daily, the Madras Mail, ceases publication.

1983: Telugu Desam sweeps to power in Andhra Pradesh; Janata-led front, ahead in Karnataka; CPI (M)-led four-party left front secures absolute majority in Tripura; Janata Party President Mr. Chandra Shekhar starts on his *Bharat Yatra* on foot from Kanyakumari (Jan. 6). Mr. N. T. Rama Rao takes oath as Chief Minister of Andhra Pradesh (8). Eight-member Janata Party Ministry, headed by Mr. Ramakrishna Hegde, takes office in Karnataka (10). Notification issued for electing a 126-member Assam Assembly and 12 members to the Lok Sabha from the State (12). After a break of two years Bharat Ratna awarded to late Sarvodaya leader Acharya Vinoba Bhave (25). P.M. reconstitutes cabinet by appointing two new Cabinet Ministers and five Ministers of State. Piloo Mody (57), politician, dies in Delhi (29). Minister for Shipping and Transport, Mr. C. M. Stephen, resigns to become Cong. (I) secretary.

Mr. Vasantrao Patil sworn in Chief Minister of Maharashtra (Feb. 2). A.P. Government staff-retirement age reduced to 55. The Chairman of the Railway Board M. S. Gujral's services terminated. P.M. drops Ministers A. P. Sharma and B. N. Singh from the Cabinet (14). Governor of Himachal Pradesh, Mr. A. N. Banerji, appointed Karnataka Governor (16). Cong. (I) wins two-thirds majority in Assam. Meghalaya Cong. (I) stakes claim for power/

(23). Hiteswar Saikia heads new Assam Cong. Ministry, Playwright Tennessee Williams (71) dies (25). 13-member Cong. (I) Ministry assumes office in Assam (28).

Dharamsey Mulraj Khatau (82), doyen among industrialists, dies (Mar. 21). Mrs. Indira Gandhi announces appointment of one-man commission, headed by retired Supreme Court Judge Mr. Justice R. S. Sarkaria, to go into Centre-State relations (24). West Bengal unit of Congress (S) headed by Mr. Priya Ranjan Das Munshi merges with Congress (I).

ONGC strikes oil off Bombay coast (April 1). Cong (I)-led Meghalaya Democratic Front assumes office in Meghalaya. Gen. J. N. Chaudhari (75), former Chief of Army Staff, dies (6). Virbhadra Singh elected Himachal Pradesh Chief Minister (8). "Gandhi" (film) wins 8 Oscars (Apr. 12). Akali Dal launches "army of 100,000 volunteers" as "sacrifice force" (14). SLV-3 launched. Rohini put in orbit (17). Agreement for a Rs. 700-crore scheme to bring Krishna water to Madras signed (19). First bone-marrow transplant in India at the Tata Memorial Hospital in Bombay (23).

Mathura Oil Refinery inaugurated (May 4). Prime Minister Mrs. Indira Gandhi inaugurates work on the Krishna water supply (Telugu Ganga) project for Madras (25). Gen. A. S. Vaidya, GOC-in-C Eastern Command, appointed new Chief of Army Staff (May 31).

Morarji Desai denies having been a CIA agent (June 2). Ruling National Conference wins in Kashmir general election (6). G. D. Birla (89), doyen of Indian industry, dies in London (11). Dr. Farooq Abdullah sworn in Chief Minister of Jammu and Kashmir (12). Congress (I) withdraws support to DMK in Pondicherry coalition (22).

First 235 MW unit of nuclear power station at Kalpakkam goes critical (July 2). Union Cabinet approves special plan for expansion of television network envisaging installation of 112 low power and 13 high power additional transmitters by end of 1984 (6). Former Chief Minister of Himachal Pradesh Ram Lal appointed Governor of Andhra Pradesh (13). Mahadevi Verma, (76) Hindi poetess wins Jnanapith award for 1982 (24).

One-day bandh in Tamil Nadu to protest against killings of Tamils in Sri Lanka (Aug. 2). Dr. Raja Ramanna, Director of Bhabha Atomic Research Centre, appointed Chairman of Atomic Energy Commission and Secretary of Department of Atomic Energy (6). DMK President, Mr. M. Karunanidhi and General Secretary Mr. K. Anbazhagan resign from Tamil Nadu Assembly on Sri Lanka Tamils' issue; Bihar Chief Minister, Dr. Jagannath replaced by Union Minister of State for Energy Mr. Chandrasekhar Singh (10). Indian scientists successfully deploy vital C-band antenna and partially open solar array of INSAT-1B; (31).

Kona Prabhakara Rao, sworn in Lieutenant-Governor, Pondicherry (Sept. 2). INSAT-1B runs into snag, as solar array fails to deploy fully (4). India conferred consultative membership of Antarctica Treaty; Over 100 killed, 98 injured, as multi-storeyed building under construction collapses in Majestic area, Bangalore (12). INSAT-1B overcomes hurdles, successfully completes all deployment manoeuvres, including solar sail (14). INSAT-1B successfully pushed into its (nominal) position in its space home (18). APPLE, India's first experimental communication satellite, ends mission after remaining in space for two years and three months (20). Supreme Court upholds execution of criminals through hanging by rope (23). Mohammad Koya, (56) Dy. Chief Minister, Kerala, dies in Hyderabad (28).

Squadron leader Rakesh Sharma, an IAF test pilot, selected to go into space (Oct. 6). The Governor of West Bengal, B. D. Pande, appointed Governor of Punjab. The first ever trans-Himalayan motor expedition concludes (8). China makes fresh territorial claims in the north-eastern sector of Bhutan (14). The Union Government takes over management of 13 textile undertakings in Bombay; marathon strike in cotton textile industry ends (19). The Union Government decides to reduce the upper age limit for the Civil Service examinations from 28 to 26 (22). Avukaderkutti Naha sworn in Deputy Chief Minister of Kerala (24). On the basis of the Menon Committee report the Prime Minister decides not to give clearance for the Silent Valley hydro-electric project.

Lakshmi Devadas Gandhi (71), youngest daughter of Rajaji and daughter-in-law of Gandhiji, dies (Nov. 9).

In Bombay INS Godavari, first frigate fully designed by Indian Navy and built at Mazgaon, commissioned (Dec. 10). No-trust motion against Cong. (I)-led coalition ministry rejected in Kerala assembly (20). Third Indian expedition lands on Antarctica (27).

1984: Akali Dal (L) President, Harchand Singh Longowal, rejects Home Minister P. C. Sethi's offer to refer Chandigarh and Abohar-Fazilka issues to the Supreme Court. Coconut oil prices reach all time high of Rs. 38 per kg in Kerala (Jan. 2). 71st Session of Indian Science Congress opens in the tribal town of Mesra in Ranchi, Bihar. Filmotsav 84 opens in New Delhi (3). Posts of Village Officers abolished in Andhra Pradesh (5). Andhra abolishes land revenue tax. C. M. Stephen, Congress (I) General Secretary, dies (16).

"Kashmir Liberation Army" kidnaps Mr. R. H. Mahtre, Indian Assistant High Commissioner in Birmingham, who is later killed (Feb. 4). Prime Minister Indira Gandhi, leaves for Moscow to attend the funeral of Soviet leader Yuri Andropov (13). Prime Minister Indira dedicates INSAT I system to the nation (26).

Mother Teresa University inaugurated by Mother herself at Kodaikanal, T. Nadu (Mar. 2). Chandra Sekhar elected President of Janata Party for a third term (6). Controversial Bihar Press Bill withdrawn (7). Aviation fuel tank blows up at the Cochin Refineries leading to devastating fire (8). Three lakh port and dock workers strike paralysing 10 major ports (16). Private sector allowed to manufacture telecommunication, switching and transmission equipment (23). Jagmohan, appointed Governor of Jammu and Kashmir in place of B. K. Nehru, shifted to Gujarat (26).

Jammu and Kashmir Assembly adjourned sine die following walkout by Congress(I) members (Apr. 2). Squadron leader Rakesh Sharma became India's first spaceman, when he was launched aboard Soyuz T-11 spaceship from Baikonur cosmodrome in Kazakhstan along with two Soviet cosmonauts (5). Terrorists in Chandigarh kill Congress(I) MP from Punjab Mr. V. N. Tiwari. Kerala Government decides to drop Silent Valley Project and declares the entire area a national park (13). Tirumalai-Tirupati Devasthanams celebrate Golden Jubilee (22).

Tamil Nadu Government extends noonmeal scheme to 63,000 pensioners (May 1). Prime Minister Indira Gandhi and Nakasone, Prime Minister of Japan, hold talks in New Delhi (4) Phu Dorjee conquers Mount Everest without oxygen (9). Giani Pratap Singh, aged former head priest of the Akal Takht, shot dead by intruders in his house in Amritsar (10).

Sikkim Government headed by Narbahadur Bandari dismissed; Mr. B. B. Gurung, State's Finance Minister, sworn in Chief Minister; Bronze bust of mathematician Srinivasa Ramanujan unveiled at the Madras University (Mar. 11). Ramesh Chandra Chopra, editor-in-chief of the *Hind Samachar* group of newspapers shot dead by extremists in Punjab. Mr. George Bush, the U.S. Vice-President, in Delhi; Mr. M. A. Muthiah Chettiar, (79), Pro-Chancellor, Annamalai University, dies (12). Miss Bachendri Pal becomes the first Indian woman to conquer Mount Everest (23). Centre takes over administration in Sikkim; State Assembly dissolved (25). Dr. Bruno Kreisky, former Chancellor of Austria and Dr. Leopold Sedar Senghor, former president of Senegal given the Jawaharlal Nehru Award for International Understanding for 1983 and 1982 respectively (28).

Army takes control in Punjab to stem terrorist violence. The State declared a restricted area under the Foreigners Act (June 2).

Under *Operation Blue Star* Army forces flush out terrorists in Golden Temple and other religious places (6).

The bodies of Bhindranwale and Bhai Amrik Singh, President of the banned Sikh Students Federation, found in the basement of the Akal Takht in the Golden Temple; Violence in Delhi, Srinagar; Mr. Zail Singh visits Golden Temple (7). Britain apologises to Indira for BBC interview with Dr. Jagjit Singh Chohan (15). Most Gurudwaras thrown open in Punjab (21); Longowal released, arrested again; Former Maharashtra CM A. R. Antulay resigns from Indira Gandhi Pratibha Prathishtan (22). PM visits Golden Temple, meets head priests (23). Jnanapith Award for Masti Venkatesh Iyengar (24). Curfew in Hubli after violence; Golden Temple thrown open to devotees (25). Punjab Governor B. D. Pande and police chief Mr. P. S. Bhinder resign. K. T. Satarawala appointed new Governor (29).

Air Marshal L. M. Katre appointed Chief of Air Staff (July 1). Farooq Abdullah's Ministry dismissed in Srinagar and G. M. Shah sworn in Chief Minister with Congress(I) support; IA Airbus hijacked, lands in Lahore (5). Pro Bhindranwale Sikh terrorist hijackers surrender; hostages return home (6). White Paper on Punjab released by Union Government (10). External Affairs Minister, P. V. Narasimha Rao, appointed Home Minister. (19). Terrorists breach Bhakra canal in Punjab (21).

N. D. Tiwari replaces Mr. Sripat Mishra as UP CM (August 1). Bomb explosion at Meenambakkam Airport kills 8. S. B. Chavan, Minister without portfolio made Defence Minister (2); Death toll in Madras airport explosion rises to 32 (3). Two Sri Lankans among five arrested for the bomb blast at Madras airport (11). In Andhra Pradesh N. T. Rama Rao's ministry dismissed by Governor Ramlal and Bhaskara Rao sworn in as Chief Minister (16). 71 dead and 104 injured when the Jabalpur-Gondia passenger train plunges into a flooded rivulet; Andhra observes total bandh to protest against the dismissal of Rama Rao Ministry (17). Rama Rao parades 162 MLAs before President Zail Singh; A. P. Sharma elected to Rajya Sabha (21). R. Venkataraman elected eighth Vice-President of India (22). Ramlal resigns as A.P. Governor; Indian Airlines Boeing 737 with 68 passengers and a crew of 6 hijacked to Lahore; The twelve Sikh hijackers of IA Boeing 737 surrender to authorities in the UAE and release all 68 passengers (26).

World Sikh Convention at Amritsar adopts resolution excommunicating President Zail Singh (Sept. 2). Tamil Nadu Food Minister, S. D. Somasundaram, dismissed from State Cabinet. Prof. U. R. Rao, Director of ISRO Satellite Centre, appointed chairman of Space Commission (10). Bhaskara Rao resigns as Chief Minister of Andhra on Governor's demand. N. T. Rama Rao, back as Chief Minister, asked to prove majority in a month. (16). N. T. Rama Rao proves majority in the Assembly (20). Army withdraws from the Golden Temple; Repair of the Akal Takht complete (25). President Giani Zail Singh is exonerated by Sikh high priests (26).

Vice Admiral R. H. Tahiliani appointed Chief of Naval Staff (Oct. 1). Unilateral ceasefire by Mizo rebels ordered by Laldenga (2). Tamil Nadu CM MGR suffers a stroke (Oct. 14). Japanese neurologist arrives to examine MGR (20). New party called Dalit Mazdoor Kisan party formed under the leadership of Charan Singh (21). Laldenga in Delhi for talks to end insurgency in Mizoram (29). Indira Gandhi assassinated by two of her own security guards at her residence in Delhi. Rajiv Gandhi sworn in Prime Minister (Oct. 31).

Violence following Mrs. Gandhi's assassination takes heavy toll (Nov. 2). The body of Mrs. Gandhi consigned to flames; Violence continues in New Delhi; Toll rises to 900; Rajiv Gandhi elected Congress(I) President (12). Lok Sabha elections announced for Dec. 24 and Dec. 27; (13). TN assembly dissolved (15). AP Assembly dissolved; N. T. Rama Rao seeks fresh mandate (22). Y. B. Chavan (71), former Deputy Prime Minister, dies (25).

2,500 persons killed and 2,000 badly affected when they inhaled poisonous gas escaping from an insecticide plant in Bhopal (Dec. 3). The chairman of Union Carbide Warren Anderson arrested and released in Bhopal (7). Justice Thakkar Commission appointed to enquire into the assassination of Indira Gandhi (10). Asoka Mehta, former Union Minister, dies (11). First MIG 27M aircraft assembled by HAL takes off (Dec. 14). MGR has kidney transplant (19); Polling for eighth Lok Sabha and Tamil Nadu Assembly (24). Indian supertanker "Kanchenjunga" hit in the Gulf (25). Congress (I) sweeps Lok Sabha elections (28). Ramakrishna Hegde, Karnataka Chief Minister resigns and recommends dissolution of the Assembly, following the Lok Sabha poll verdict; AIADMK swept back to power (29).

1985: Doordarshan starts Malayalam telecast from Trivandrum (Jan. 1). Gegong Apang sworn in Chief Minister of Arunachal Pradesh (2). Rishang Keishing sworn in Chief Minister of Manipur (4). P. N. Malhotra appointed RBI Chief (5). Pratapsingh Rane sworn in Chief Minister of Goa (8). Jawaharlal Nehru Award for International Understanding presented to former Austrian Chancellor Bruno Kreisky in New Delhi (11). Balram Jakhar unanimously elected Speaker of the Lok Sabha (16). A British film, The Bostonians and a Russian film, Ruthless Romance, share the Golden Peacock at the 10th International Film Festival of India in New Delhi (17). Spy ring cracked. Top Government officials, businessmen held (18). Dr. P. C. Alexander, principal secretary to the PM quits following the arrest of three aides in an espionage case (19). Padma Vibhushan for M. G. K. Menon, Padma Bhushan for Thakazhi Sivasankara Pillai and Padmasri for P. T. Usha (25). Prime Minister Rajiv Gandhi, Greek

Prime Minister Andreas Papandreou, Swedish Prime Minister Olof Palme, Tanzanian President Julius Nyerere, Mexican President Miquel de la Madrid and Argentinian President Raul Alfonsin meet in New Delhi and call for the prevention of an arms race in outer space, 1984 Jawaharlal Nehru award for international understanding posthumously conferred on Indira Gandhi (28). Anti-defection bill passed by the Lok Sabha (30).

Mohammad Azharuddin becomes the first man in cricket history to hit a century in each of his first three tests (Feb. 1).

M. G. Ramachandran returns to Madras after treatment in New York (4). Two Kashmiri separatists sentenced to life imprisonment in Birmingham for the murder of Indian diplomat Ravindra Mhatre there in February 1984 (7). M. G. Ramachandran sworn in for a new term as Chief Minister of Tamil Nadu (10). A fire on M.V. Chidambaram, an Indian liner sealing from Singapore to Madras, kills 34 (12). Dr. Nagendra Singh elected world court chief (14). Rajasthan Chief Minister Shiv Charan Mathur quits, owning moral responsibility for the killing of Raja Man Singh; Heera Lal Deopura sworn in Chief Minister (23).

Rajendra Sethia, the biggest personal bankrupt ever, arrested in New Delhi (March 1). Mani and Joseph factions of Kerala Congress merge to form a single party (3). Ramakrishna Hegde sworn in Chief Minister of Karnataka, Virbhadra Singh Chief Minister of Himachal Pradesh and Nar-Bahadur Bhandari Chief Minister of Sikkim (8). N. T. Rama Rao sworn in Chief Minister of Andhra Pradesh (9). J. B. Patnaik sworn in Chief Minister of Orissa, Hardeo Joshi Chief Minister of Rajasthan and Vasantrao Patil Chief Minister of Maharashtra; India beats Pakistan by 9 wickets in the final of the Benson and Hedges world championship in cricket in Melbourne. Ravi Shastri is declared champion of champions and Sunil Gavaskar steps down from the captaincy (10). Madhavasinh Solanki sworn in Chief Minister of Gujarat, N. D. Tiwari Chief Minister of Uttar Pradesh and Arjun Singh, Chief Minister of Madhya Pradesh (11). Mohammad Usman Arif appointed Governor of Uttar Pradesh and P. Venkatasubbaiah Governor of Bihar; Bindeswari Dubey sworn in Chief Minister of Bihar (12).

Prime Minister Rajiv Gandhi in Moscow for the funeral of Konstantin Chernenko, meets world leaders; Motilal Vora sworn in Chief Minister of Madhya Pradesh (13). Finance Minister V. P. Singh presents innovative tax reductions and duty exemptions in his maiden budget; M. O. H. Farook sworn in Chief Minister of Pondicherry (16). Indian Airlines offers instant booking with its new computerized system (25). India beats Australia by three wickets in the final of the Rothmans tournament in Sharjah to remain undisputed champs in limited overs cricket (29).

Union Agriculture Minister Buta Singh excommunicated from the Sikh Panth; Mauritian Prime Minister Aneerood Jugnauth in Delhi (April 2). Bombay wins the Ranji Trophy for the 30th time, beating Delhi by 90 runs in the golden jubilee year of the national cricket championship (6). Judicial probe ordered into the riots in Delhi, following Indira Gandhi's assassination. Ban on the All-India Sikh Students Federation lifted (11). Full diplomatic status for SWAPO representative in New Delhi; SPGC chief G. S. Tohra released (19); NAM meet on Namibia adopts in New Delhi a resolution calling for sanctions against South Africa and an action plan to rush more economic and military assistance to SWAPO (21). The Supreme Court awards maintenance to a divorced Muslim woman (23). Lenin Peace Prize posthumously awarded to Indira Gandhi (25). Union Government declares moratorium on 3 banks — Bank of Cochin, Lakshmi Commercial Bank, New Delhi, Miraj State Bank, Rajasthan (27).

S. P. Jogota, former Additional Secretary in the External Affairs Ministry unanimously elected chairman of the International Law Commission (May 1). Adoor Gopalakrishnan adjudged Best Director (Mukhamukham) in national film awards (7).

Bombs that look like transistors explode in and around Delhi, killing more than 80 people; P. N. Bhagawati appointed Chief Justice of the Supreme Court (10). Dr. P. C. Alexander appointed High Commissioner in Britain (18). Communist leader P. Sundarayya dead (20). Prime Minister Rajiv Gandhi visits Moscow and signs two agreements with General Secretary Mikhail Gorbachev (22). J. N. Dixit takes over as India's High Commissioner in Sri Lanka (27); Moore Market destroyed in pre-dawn fire in Madras (30).

Maharashtra Chief Minister Vasantrao Patil resigns (June 1). Prime Minister Rajiv Gandhi and Sri Lankan President J. R. Jayewardene meet in New Delhi, fly together to Dhaka and accompanied by President H. M. Ershad visit the cyclone-hit areas of Bangladesh (2). Shivajirao Patil-Nilangekar sworn in Chief Minister of Maharashtra; Central Government offices switch to 5-day week (3). Rajiv Gandhi meets Egyptian President Hosni Mubarak in Cairo; Kerala Electricity Minister R. Balakrishna Pillai resigns after a petition challenging his continuance in office was admitted in the High Court (5). Festival of India opens in Paris. Rajiv Gandhi meets French President Francois Mitterrand and Prime Minister Laurent Fabius (7). Rajiv Gandhi meets President Chadi Benjedid in Algiers (10). Nehru Science Award for M. G. K. Menon (12). Rajiv Gandhi concludes his first visit to the United States as Prime Minister. He meets President Ronald Reagan and other leaders (16). Rajiv Gandhi addresses the 71st session of the International Labour Organization in Geneva. He also receives the John C. Philips memorial medal awarded to Indira Gandhi by the International Union for Conservation of Nature (17). The Medal of Freedom, America's highest civilian decoration, presented to Mother Teresa by President Ronald Reagan in Washington (20). Nitya Nanak and Nitya Ram, two ships belonging to a Bombay-based company, with a total of 44 persons on board vanish off the coast of Tamil Nadu (21). All 329 persons on board are killed as an Air-India Boeing 747 flying from Toronto to Bombay via Montreal, London and New Delhi crashes into the North Atlantic (23). India's first batch of Mirage fighter planes arrive from France (29).

Air Chief Marshal L. M. Katre dead (July 1). Davids Antony la Fontaine appointed Air Chief Marshal (3). Gujarat Chief Minister Madhavsinh Solanki resigns. Home and Education Minister Amarsinh Chaudhary takes over (6). Talks open in Thimphu between representatives of the Sri Lankan Government, the Tamil United Liberation Front and five Tamil militant groups (8). Dr. Rajinder Singh, a Simla dentist, wins the world speed typing championship in Sofia with a speed of 483 strokes per minute and an accuracy of 99.97 per cent (14). Prime Minister Rajiv Gandhi and Akali Dal president Sant Harchand Singh Longowal meet in New Delhi and sign an agreement ending the four-year agitation in Punjab; Maj. Gen. (Retd.) F. D. Larkins, his brother Air-Vice Marshal K. H. Larkins and Lt. Col. Jasbir Singh sentenced to 10 years rigorous imprisonment for passing on classified information to American agents (24). Jnanapith Award for Thakazhi Sivasankara Pillai (29). Congress (I) M.P. Lalit Maken, his wife and a visitor at their residence in Delhi shot dead by terrorists (31).

Ramon Magsaysay award for public service goes to Baba Amte; All India Muslim League merges with the Indian Union Muslim League (August 3). Geet Sethi of India beats Bob Marshal of Australia 3,809-2,453 in the final of the world amateur billiards championships in New Delhi (7). Gandhiji's ashram in South Africa destroyed by rioters (9). Accord reached on the Assam foreign nationals issue. Agitation called off (15). Assam Assembly dissolved (18). Full bench of Kerala High Court dismisses petition against former Electricity Minister R. Balakrishna Pillai (19). Akali Dal president Sant Harchand Singh Longowal shot dead near Sangrur (20). INS Mysore, which played a prominent part in the liberation of Goa and in the Bangladesh war and had served the Indian Navy for 28 years, decommissioned (28).

Development officer Jawahar Deholakia of the Rajkot branch of the LIC enters the Guinness Book of World Records for having secured over Rs. 1 crore worth of business for the 17th year in succession (Sept. 1). Congress (I) metropolitan councillor Arjun Dass and his bodyguard Vajinder Singh shot dead in Delhi (4). P. T. Usha declared Best Athlete at World Railways Meet in Olomouc, Czechoslovakia (6). Uttar Pradesh Chief Minister N. D. Tiwari resigns (23).Veer Bahadur Singh sworn in Chief Minister of Uttar Pradesh; Union Minister of State for Tourism and Civil Aviation Ashok Gehlot resigns (24). Reshuffle of the Union Cabinet K. R. Narayanan becomes Minister of State for External Affairs and Krishna Kumar Deputy Minister for Family Welfare (25). Surjit Singh Barnala sworn in Chief Minister of Punjab after a massive Akali Dal victory in the state elections; Prime Minister Rajiv Gandhi meets King Jigme Singye Wangchuk in Thimphu and receives Bhutan's highest honour, the Druk Wangyal Award, posthumously conferred on Indira Gandhi (29).

Morocco breaks diplomatic relations with India after New Delhi announced its recognition of the Saharwi Arab Democratic Republic proclaimed by the Polisario rebels fighting the Moroccan Government in the Western Sahara (October 3). Rajiv Gandhi visits Britain. President Zail Singh visits Lakshadweep (14). Prime Minister Rajiv Gandhi visits Haryana and receives the National Order of Jose Marti, Cuba's highest honour, posthumously conferred on Indira Gandhi (21). The Nelson Mandela medal instituted by the Holland committee on South Africa, presented to Rajiv Gandhi at the United Nations, in recognition of India's contribution to the struggle against apartheid (22). Rajiv Gandhi, in New York for the 40th anniversary of the United Nations, holds talks with several world leaders, including President Mohammad Zia-ul-Haq of Pakistan (23). Athletes P. T. Usha and Shiny Abraham win Arjuna Awards (24). Rajiv Gandhi visits the Hague and meets Dutch Queen Beatrix (25). Rajiv Gandhi, flying back from a five-nation tour makes an unscheduled stopover in Moscow and meets General Secretary Mikhail Gorbachev (31).

Preeti Arora retains world arm wrestling title (Nov. 5). Film star Sanjeev Kumar dead; 82 killed in bus accident in Himachal Pradesh (6). Rajiv Gandhi dedicates to the nation the Dhruva research reactor at the Bhabha Atomic Research Centre (11). Over 180 people killed as incessant rain batters Tamil Nadu (13); Punjab Governor Arjun Sigh and Delhi Lt. Governor M. M. K. Wali resign. Andhra Pradesh Governor S. D. Sharma shifted to Punjab, Kumudben Joshi takes his place in Andhra Pradesh. Air-Vice Marshal (Retd.) H. L. Kapur succeeds Wali in Delhi. Vasantrao Patil named Governor of Rajasthan. Doordarshan begins teletex service (14). Arjun Singh sworn in as Union Cabinet Minister for Commerce (15). Acharya Rajneesh returns to India after four-years in the United States (17); PLO Chairman Yasser Arafat meets Prime Minister Rajiv Gandhi in New Delhi (19). Rajiv Gandhi visits Lakshadweep (22). Rajiv Gandhi visits Vietnam (27). Subbash Aggarwal scores 1,788 points to set world record in amateur billiards (28). Three constables sentenced to life imprisonment for murdering Sub-Ispector George Soman at Panoor, Kerala (29).

India wins the Sultan Azlan Shah trophy, beating Pakistan 4-2 in the final of the six-nation hockey tournament in Ipoh, Malaysia (Dec. 3). "Jehova's Witnesses" have to sing the national anthem, rules Kerala High Court (7). Industrialist S. L. Kirloskar arrested and let off on bail (12). Rajiv Gandhi joins the leaders of Greece, Sweden, Tanzania, Mexico and Argentina in a teleconference as part of the UN ceremony at which they are honoured with the 'Beyond War award' (14). Rajiv Gandhi dedicates to the nation the fast breeder test reactor at Kalpakkam (16); Rajiv Gandhi and Pakistan President Zia-ul-Haq meet in Delhi and agree not to attack nuclear plants in each other's country. In Adelaide Sunil Gavaskar hits his 31st test century and becomes the first man to make more than 9,000 test runs (17). Prafulla Kumar Mahanta shifts from a university hostel to the Chief Minister's residence after the Asom Gana Parishad secured an absolute majority in the Assam Assembly elections and elected him leader (24). In Bombay the Congress (I) celebrates the 100th anniversary of the founding of the Indian National Congres (26).

1986: India's first radio mobile telephone and radio paging services commissioned at New Delhi (Jan. 1); Prime Minister, Rajiv Gandhi christens 2.34 metre giant telescope at Kavalur Observatory named after Dr. M. K. Vainu Bappu, founder of the Indian Institute of Astrophysics (7); Pakistan decides to lift 8-year-old ban on private trade with India (10); Union Government declares Ladakh a Scheduled Tribe area under a constitutional amendment order by the President, applying article 342 for the first time to Jammu and Kashmir; MiG-27, an all-weather supersonic strike air craft, inducted into Indian Air Force (11); Indian Airlines creates history when her 44-Seater Fokker Friendship aircraft of 1C 258 from Silchar to Calcutta had all women crew. It was commanded by Saudamini Deshmukh and co-pioleted by Nivedita Bhasin (13); General K. M. Kariappa, the first Commander-in-Chief of the Indian Army made Field Marshall (14); Union Government under the orders of Mathew Commission conducts quick de novo limited census in 54 villages in Fazilka and Muktsar tehsils in Punjab to decide whether they should be transferred to Haryana in lieu of Chandigarh (16); Government of India announces 26-year-upper age limit for Civil Service Examinations with effect from 1987 (17); Ashok Mitra, West Bengal's Minister for Finance and Planning resigns (18); 3 Union Ministers — Arjun Singh, T. Anjiah and Naval

Kishore Sharma quit for party work. Arjun Singh inducted into the newly created Congress Vice Presidentship; Rajya Sabha Vice Chairman Mrs. Najma Heptulla also quits to become Congress General Secretary. Anjiah and Kishore made Congress General Secretaries (19); P. Shiv Shankar (Andhra) and Chandrasekhar Singh (Bihar) reinducted into Union Cabinet. Dy. Minister P. Chidambararm (Tamil Nadu) promoted as State Minister. P. A. Sangma appointed State Minister for Labour with independent charge; Pakistan's Special Court sentences 3 Sikh hijackers of Indian Airlines Flight to Lahore in 1984 to death and rigorous life imprisonment (20); Satwant Singh, Balbir Singh and Kehar Singh sentenced to death by Delhi Addl. District & Sessions Judge, Mahesh Chandra for the murder of former Prime Minister, Indira Gandhi on Oct. 31, 1984 (22); 38 persons including 25 foreigners die in fire in five-star Sidharth Continental Hotel in Delhi (23); Social workers Baba Amte, Dr. Avtar Singh Paintal and Kathak exponent Birju Maharaj get Padma Vibhushan in Republic Day honours; Transfer of Chandigarh to Punjab deferred as Mathew Commission fails to demarcate Hindi-speaking areas to be transferred to Haryana (25); Two senior Ministers of State, Chandulal Chandrakar and K. P. Singh Deo implicated in Ram Swarup Spy scandal, resign from the Union Council of Ministers; M. S. Sanjeevi Rao, Chairman of the Electronics Commission resigns (27).

Pope John Paul II arrives in New Delhi for a 10 day-visit to the country; Union Government announces steep hike in prices of petroleum products; Staff Selection Commission sets up Grievances Cells at their headquarters and in their regional offices in Allahabad, Guwahati, Madras and Raipur; General Krishnaswami Sundarji takes over as the new Chief of the Army Staff (Feb. 1); Faziabad District and Sessions Judge orders opening of Ram Janma Bhoomi for unhindered worship; Goa connected to Air India's international network when its Airbus, Q 300-B4 arrived from Kuwait at Dabolim airport (2); Prof. M. G. K. Menon appointed Scientific Adviser to the Prime Minister (3); A 7-member Science Advisory Council, headed by Prof. C. N. R. Rao, Director of the Indian Institute of Science, Bangalore is constituted for two years to advise the Prime Minister (4); Two Indians—Fr. Chavara Kuriakose Elias and Sister Alphonsa raised to the 'blessed rank' by Pope John Paul II at a function in Kottayam, Kerala (8); Karnataka Chief Minister, Ramakrishna Hegde submits resignation in the wake of High Court judgement in the arrack bottling contract case; Dr. Madhuri Shah, Chairman of U.G.C. retires. Prof. Yashpal appointed successor (11); Ramakrishna Hegde returns to power as Chief Minister of Karnataka; 'Sarbat Khalsa' called at Anandpur Sahib (Punjab) directed the Shiromani Akal Dal and the Shiromani Gurudwara Prabhandhak Committee to clear the Golden Temple (16); Renowned Philosopher, J. Krishna Murthy (90) dies at Ojal in California (17); Ayilam Panchapakesa Venkateshwaran (56) appointed new Foreign Secretary (19); The Supreme Court rules that Christian women in the former Travancore-Cochin State have right for equal share of paternal property; Mrs. Rukmini Devi Arundel, founder of Kalakshetra, Madras, dies (21); M. M. Jacob (Con.-I) elected Deputy Chairman of Rajyasabha; Mail and Express trains fares up; frieght, season tickets left untouched in surplus railway budget; Union Minister of State for Energy, Arif Mohammed Khan resigns in protest against the Muslim Women (Protection of Rights on Divorce) Bill. Dr. A. P. Mitra takes over as Director-General of Council of Scientific and Industrial Research and Secretary, Department of Science (26); Central Budget seeking to implement various elements of long-term fiscal policy with Rs. 467 crore levies and Rs. 3650 crore deficit presented to Parliament by Finance Minister, V. P. Singh (28).

Punjab Chief Minister, Surjit Singh Barnala expands his ministry by inducting five Ministers of State (Mar. 2); Supreme Court bans three Kerala students who refused to sing national anthem from appearing for the annual examination (4); Bombay High Court rules that the MD examination of Bombay University in last October had been manipulated to benefit Maharashtra Chief Minister, Shivaji Rao Patil Nilangekar (6); G. M. Shah Government dismissed in Jammu and Kashmir. Governor's rule imposed; Maharashtra Chief Minister S. Rao Patil Nilangekar, implicated in mark scandal involving his daughter Chandrakala, resigns; Himachal Pradesh Governor Hokishe Sema resigns to contest in Rajya Sabha poll; L. K. Advani elected President of B.J.P. (8); Kerala wins overall championship at

24th National Inter State Athletics, Agartala (9); S. B. Chauhan elected Chief Minister of Maharashtra (11); Congress (I) Minister, M. P. Gangadharan of Kerala resigns following adverse court verdict (12); Veteran Congress leader and Ex-Governor K. C. Abraham dies in Kerala (13); Justice Kirpal Commission concludes that Air India Jumbo jet 'Kanishka' crashed into the Atlantic on June 23, 1985 because of a bomb explosion in its forward cargo hold; India finally decides to buy 21 Westland Helicopters from Britain (14); Internationally wanted criminal Charles Sobharaj and 6 other prisoners escape from Tihar Jail, New Delhi (16); C. Rajeswara Rao (74), unanimously re-elected General Secretary of the Communist Part of India; Atomic Energy Commission reconstituted. Dr. Raja Ramanna to continue to be the Chairman (18); Government of India rejects Union Carbide's offer to pay $350 million as compensation to Bhopal victims (24); Punjab Chief Minister Barnala escapes extremists' attempt in Anandpur Sahib (26); Maharashtra Governor resigns in the wake of being censured by the Bombay and Pune Universities for his alleged interference with affairs of the universities of the State (27).

Sidhartha Shankar Ray appointed Governor of Punjab in place of Dr. Shankar Dayal Sharma who is transferred to Maharashtra; Vice-Admiral R. K. S. Gandhi appointed Governor of Himachal Pradesh; Romesh Bhandari, former Foreign Secretary, who joined Cong. (I) appointed Chairman of the party's Foreign Relations Department (Apr. 1); Central Government announces excise benefits for small units; A new panel-Justice Venkataramaiah Commission – appointed to determine the Hindi speaking areas in Punjab to be given to Haryana in lieu of Chandigarh (3); Milon Kumar Banerjee, first Additional Solicitor General appointed Solicitor General of India (4); International criminal Charles Sobhraj and David Hall, his associate, nabbed at Mapusa in Goa (7); 'University of Health Sciences', the first Medical University in the country, inaugurated in Vijayawada (8); Baba Amte declares war for peace on completion of the 'Bharat Jodo' (Knit India) movement from Kanyakumari to Kashmir (12); 46 people killed in stampede at Mahakumbha Mela at Hardwar (14); Veteran Congress leader Atulya Ghosh, 83, dies in Calcutta (18); Fourth Pay Commission finalises recommendations that will entail an expenditure of Rs. 2200 crore (19); Air India's first Airbus A310-300, 'Yamuna' arrives in Bombay (20); New national education policy unveiled in Parliament. France Albert Rene, the President of Seychelles, arrives for a 6-day visit to India (21); New policy advisory committee headed by G. Parthasarathy appointed (26); Congress (I) expells former Union Minister, Pranab Kumar Mukherjee from party for 6 years and suspends former Chief Minister of UP Sripat Mishra, former Union Minister A. P. Sharma and former Assam Governor Prakash Mehrotra from party (27); Malayalam Film 'Chidambaram' directed by G. Aravindan wins best feature film award and Shyam Benegal bags the Best Director award for the Hindi film 'Trikal' in the 33rd national film awards for 1985; West German Chancellor Helmut Kohl arrives for a 4-day official visit to India (28); Overseas airmail rates shoot up following decisions at Hamburg Congress of Universal Postal Union; Five-member Panthic Committee announces formation of 'Khalistan' (29); Security forces raid Golden Temple to clear the area of extremists and secessionists — holds 150; Chandra Sekhar re-elected President of Janata Party for the tenth year in succession (30).

Controversial Muslim Women Bill passed by Lok Sabha amidst stiff resistance by the opposition (May 5); The nonagenarian social worker who devoted his life to the cause of lepers, Dr. Shivajirao Patwardhan, 94, dead (7); Tenzing Norgay, (72) who scaled the Everest first with Edmund Hillary 33 years ago, dies at Darjeeling (9); Union Cabinet expanded. External Affairs Minister B. R. Bhagat dropped. Buta Singh made Home Minister (12); Prime Minister Rajiv Gandhi leaves for Lusaka on the first leg of his 5-day tour of the 4 African frontline states of Zambia, Zimbabwe, Angola and Tanzania; New York District Federal Court Judge, Mr. John F. Keenan remits Bhopal gas case to India with the condition that Union Carbide should abide by the ruling of the Indian courts (13); Tamil Nadu Assembly votes to scrap Upper House.; Karunakaran shuffles cabinet. Vayalar Ravi resigns after he was stripped of his Home Portfolio; Veteran film maker V. Shantaram, 75, chosen for the Dada Saheb Phalke award (16); Sikh head-priests order Punjab Chief Minister, Surjit Singh Barnala to dust shoes at any gurudwaras for one week as a punishment for the police action in the Golden Temple; India decides to open diplomatic office in Luanda, Angola after Prime Minister Rajiv Gandhi's official visit there; Dr. K. L. Rao, 84, former Union Minister for Irrigation and Power and an international authority on Dams, dies (18); The pro-government Jatiya Party attains absolute majority in Bangladesh Parliamentary elections (19); T. N. Kaul, former Foreign Secretary, appointed Ambassador to the Soviet Union (20); Prime Minister sets up a Punjab Advisory Board with former Defence Minister Jagjivan Ram as head; The first ever embassy of SWAPO (South West African People's Organization) opened in New Delhi by its President Sam Nujoma (24); R. Balakrishna Pillai, once dropped from Karunakaran Ministry in Kerala because of his controversial statement on 'Punjab model agitation' reinducted (25); Excise Minister N. Srinivasan of Kerala resigns when Kerala Public Men (Prevention of Corruption) Commission found prima facie case in the allegations against him (30); Flute exponent T. R. Mahalingam dies at the age of 60; Plot to blow up Air India's New York — Delhi jet foiled (31).

Bhajan Lal resigns as Haryana Chief Minister and Union Transport Minister Bansi Lal chosen to succeed him (June 4); Thachadi Prabhakaran and Ramesh Chennithala inducted into the Kerala Cabinet (5); A tripartite meeting convened by the Union Government decides to transfer Chandigarh to Punjab in principle, but the Haryana Government will continue to function there for up to five years; Jnanapith award winner, Dr. Masti Venkatesha Iyengar, 95, dies in Bangalore (6); First AIDS death reported from a private hospital in Bombay, the victim being a businessman who received blood transfusion for a bypass heart surgery in 1980 (9); Justice Venkataramiah Commission recommends that 7000 acres of land be given to Haryana in lieu of Chandigarh and a new commission be appointed to select the area (10); 100 crore excise and customs relief to industry announced by the Finance Minister, V. P. Singh (11); Charan Singh, takes over as Lok Dal Secretary; Dr. Amiya Chakravarthy, 86, poet and scholar and former literary secretary to Rabindranath Tagore, dies at Shantiniketan (12); Prime Minister Rajiv Gandhi launches Clean Ganga Project at Varanasi (14); The Union Government appoints a commission headed by Justice D. A. Desai to identify 70,000 acres of land to be transferred
to Haryana in lieu of Chandigarh. Punja
Cabinet rejects the Commission (20); Bhar
atiya Janata Party leader Atal Bihari Vajpaye
and seven Congress (I) candidates declare
elected unopposed to the Rajya Sabha (21)
Marxist Party ousts Kerala M.L.A. M. V. Ragha
van from party (23); Union Government sanc
tions maternity leave for unmarried wome
employees too; Minor portfolio shuffle a
Centre (24); Accord with Mizo National Fron
Laldanga to be Chief Minister; Space Scientis
Dr. Vasant R. Gawarikar, 53, appointed Secre
ary, Science & Technology Department (25)
Congress (I) wins 30 seats out of 45 in Rajy
Sabha poll (28); Karnataka Chief Ministe
Ramakrishna Hegde reconstitutes cabine
dropping 17; Akali dissidents decide to form
new Party (29); Mizoram accord signed afte
protracted negotiations spread over six years
aiming at ending insurgency in the Unio
territory; Fourth Pay Commission recom
mends substantial increase in pay and allo
wances to nearly 5.2 million central govern
ment employees (30).

Andhra Pradesh Government goes back t
six-day week; C. G. Somiah, I.A.S. takes over a
new Union Home Secretary (July 2); Unio
Government increases interest rate on th
Employees Provident Fund from 10.15 pe
cent to 11 per cent (3); Akali Dal split become
formal when the break-away group elected M
Prakash Singh Badal as its President an
'expelled' Mr. Surjit Singh Barnala from th
party (5); Jagjivan Ram, 78, passes away (6
Communal violence in Ahmedabad followin
the traditional chariot procession of Lor
Jagdish, Subhadra and Balbhadra — about 2
killed; Union Petroleum Minister, Char
drasekhar Singh, 60, dies; Gujarati write
Pannalal Patel wins the Jnanapith Award fo
1985 (9); India protests against China's intru
sion of six to seven km into the India
territory in Arunachal Pradesh (15); Forme
Karnataka Chief Minister, R. Gundu Rao expe
led from Congress Party for six years fo
anti-party activities; U.P. Chief Minister orde
enquiry into the reported loss of eyesight
nearly 300 people following operations co
ducted by a Jaipur-based doctor in eye-cam
in Khurja and Moradabad towns in Apr
Government bans administering aspirin
children below 12 years of age (18); Ind
withdraws from Edinborough Commonweal
Games (20); The Supreme Court orders a

India test for medical seats; B. G. Deshmukh selected to be the Cabinet Secretary (21); The seventh round of the Sino-Indian border talks concludes without resolving the issue; Pratap Kishan Kaul, Cabinet Secretary appointed India's Ambassador to the U.S. (23); Terrorists gun down 15 bus passengers at Muktsar in Punjab (25); Army called out to quell mass rioting in Delhi (26); Army called out in Kalimpong, Darjeeling district as the Gorkha National Liberation Front sponsored agitation for 'Gorkhaland' took a violent turn, 9 die (27); Government announces further customs and excise relief for a number of items including food-stuffs and fertilisers and also restore pre-budget exemptions in the case of certain others (29); Acharya Rajneesh returns to India from Portugal, disillusioned about the outside world (30).

Amnesty scheme for evaders of indirect taxes announced (Aug. 1); Prime Minister, Rajiv Gandhi arrives in London for 3-day mini Commonwealth Summit (3); Bhaskar Ghosh I.A.S., appointed Director General of Doordarshan in place of Harish Khanna, who retired (4); Prof. Nurul Hassan appointed Governor of W. Bengal in place of Uma Shankar Dixit; Lok Sabha passes constitution 53rd Amendment bill conferring statehood to Mizoram; Government admits that China has built a helipad on the Indian side of the Mc Mahon line; The first wholly Indian test-tube baby born to 23-year old Mrs. Shyamji Chawda, at the KEM hospital, Bombay (7); Gen. A. S. Vaidya who was Chief of Army Staff at the time of 'Operation Blue Star' shot dead at Pune (10); Singing National Anthem is not obligatory—rules Supreme Court in the 'Jehovahs Witnesses' case; Kathmandu selected to locate the Secretariat of the SAARC; Tarsem Singh Kohar, the prime accused in Muktsar bus killings arrested in Punjab (12); Parliament approves the government resolution to invoke Article 249 of the Constitution and empower Parliament to legislate on certain State matters to deal with terrorism along the border areas (13); Rain-swollen Godavari causes havoc in Andhra Pradesh. More than 100 killed. Prime Minister announces Rs. 30 crore aid (17); A restructured 20-point programme announced (20); Nine-member Cong.-MNF coalition ministry headed by the MNF President Laldenga sworn in Aizawl; Andhra flood toll nears 175; Government drops plan for Security Belt (21); The Supreme Court directs the petition moved by the Attorney General, K. Parasaran, challenging the verdict that no person can be forced to sing the national anthem, to the Full Bench; Former Karnataka Chief Minister R. Gundu Rao launches new party — Indian National Congress (Indira Gandhi); Sobha Singh, the renowned Punjabi Painter dies (22); Congress (J) merges with Congress (I) (25); Sunderlal Bahuguna, V. B. Salunke and Mrs. Vasantibehen get Jamnalal Bajaj award (26); The Central Government curbs the use of aspirin and formulations containing salicylates by children below 12 (27); President Zail Singh lays the foundation stone for the Lakshmibai National College of Physical Education at Trivandrum (28).

LIC announces three new schems and cuts premium on its 30th anniversary celebrations (Sept. 1); Tamil Nadu Chief Minister M. G. Ramachandran leaves for the US for medical check up; Dr. Verghese Kurien wins 1986 Carnegie Peace Prize; India protests to UK about visa restrictions (3); National Awards for 186 school teachers on the eve of the 25th anniversary of Teachers' Day; Union Government files compensation case against Union Carbide Corporation of America in Bhopal Court (5); Union Government agrees to implement new pay-scales from January 1, 1986; President's rule imposed in J&K for 6 months (6); Dr. Madhuri Shah wins 1986 Nehru Literacy Award (8); The dissident Akali leaders, Mr. Prakash Singh Badal and Mr. G. S. Tohra released from Tihar jail; Prime Minister Rajiv Gandhi receives Nicaragua's highest award, the Augusto Caesar Sandino Order from its President Daniel Ortega at New Delhi (10); India signs agreement with the Soviet Union to launch her fourth satellite—1000 kg remote sensing satellite IRS-IA – from the Baikanoer Cosmodrome in mid-September, 1987 (15); Ratan Tata and Rahul Bajaj appointed Chairmen of Air India and Indian Airlines boards respectively; Prof. M. G. K. Menon, Scientific Adviser to Prime Minister and member, Planning Commission has been elected President of International Council of Scientific Unions (19) R. K. P. Shankar Das, a senior advocate of the Supreme Court, elected President of the International Bar Association; Mani Madhava Chakyar gets Tulasi Award of Rs. 1 lakh, instituted by Govt. of Madhya Pradesh (21); The Vice-President R. Venkataraman leaves for Botswana to attend the Frontline States' 20th Independence Day celebration (28); Pilot averts major accident to

Airbus in Madras—195 escape (29); P. T. Usha, India's sprint queen, wins the first gold for India in Seoul Asiad (30).

Swami Ranganathananda of Ramakrishna Mission chosen for the Indira Gandhi Award for National Integration (Oct. 1); Rajiv Gandhi escapes attempt on life at Rajghat ceremony (2); The Director General of Punjab Police, J. R. Ribeiro escapes terrorist attack (3); Miss. Neerja Mishra, Chief Airhostess of the Pan Am Jetliner hijacked at Karachi, is awarded Ashok Chakra, the country's highest honour for bravery, posthumously (4); Helicopter Corporation of India inaugurated by Prime Minister at Bombay (5); King Hussain of Jordan arrives in Delhi on official visit; MGR takes over the post of AIADMK General Secretary; M. S. Swaminathan, Director-General of IRRI, Manila, gets the 1986 Albert Einstein World Award of Science for outstanding scientific contribution and life-long dedication to Science (6); Kerala Government announces Rs. 3 lakh and car for P. T. Usha (9); Prime Minister Rajiv Gandhi leaves for Jakarta on a four-nations tour of Indonesia, Australia, Newzealand and Thailand (13); P. C. Sethi suspended from primary membership of the Congress Party (16); T. Anjiah, 57, former Chief Minister of Andhra Pradesh, dies (18); Tamil Nadu Cabinet reshuffled. 10 Ministers including Veerappan and Hande dropped (21); Union Cabinet reshuffled, Arjun Singh becomes Communication Minister. Arun Nehru out (22); Foundation laid for 'Seabird', South Asia's biggest naval-base at Karwar in Karnataka (24); Hokishe Sema, M.P. recalled to Nagaland to become Chief Minister when S. C. Jamir resigned; The SAARC conference on South Asian Children at New Delhi calls for a covenant on children (29); President Zail Singh arrives in Belgrade on the first leg of a 12-day three-nation tour. Prime Minister Rajiv Gandhi announces that no sick industry will be taken over by the government in future (30); Tamil Nadu Legislative Council abolished (31).

Waryam Singh Khapianwali, the man behind Muktsar massacre killed in Punjab (Nov. 2); Dr. Farooq Abdulla takes over as Chief Minister of J&K coalition government of National Conference and Congress (I). Assembly dissolved on CM's advice (7); 'Apna Utsav', the country's first national cultural festival opens in New Delhi (8); Kamalapathi Tripathi resigns from the post of Working President of Congress (I) (12); Mrs. Pratibha Patel elected Dy. Chairman of Rajya Sabha (18); Parliament approves bill to tighten citizenship laws to prevent clandestine influx of foreigners (19); Kerala High Court declares the reinduction of Mr. R. Balakrishna Pillai into the state cabinet unconstitutional (21); The Union Government claims Rs. 3,900 crore from the Union Carbide Corporation as damages in Bhopal District Court (22); Punjab wins 11th National Sports Championship for women at Chandigarh (23); Seven DMK MLAs disqualified from membership by the Speaker on the ground that they violated the oath by burning copies of the constitution; Soviet leader Gorbachev arrives in New Delhi on a four-day official visit (24); Rajiv and Gorbachev in a joint declaration call for nuclear arms ban (27); Telecom., postal rates hiked (28); Sharad Pawar group of Congress (S) decides to join Congress (I). (29); In Punjab, Gurucharan Singh Tohra elected SGPC Chief, candidate of Chief Minister Barnala defeated (30).

Punjab terrorists kill 24 bus passengers at Khudda Village in Hoshiarpur District; The eighth World Congress of International Economic Association opens in New Delhi. Prof. Amartya Sen (India), Drummond Professor of Political Economy at the Oxford University, elected President (Dec. 1.); The Delhi High Court confirms the death sentence imposed on Indira assassins, Satwant Singh, Balbir Singh and Kehar Singh (3); Former Assam Chief Minister, Hiteshwar Saikia appointed Lt. Governor of Mizoram (4); Envelope to cost 60 paise in the second postal rate hike in a fortnight; The Vice-Chancellor of Cochin Varsity, Dr. K. Gopalan resigns in protest against the new restrictive legislation for the University (5); Lok Sabha passes Constitution 55th Amendment Bill conferring full statehood to Arunachal Pradesh; The Congress (S) which broke away from the Congress (I) about 8 years ago, reunited with the party in Aurangabad Session; MGR announces formation of a Medical University in Tamil Nadu (8); Parliament passes the Consumer Protection Bill and seven other related bills (10); Delhi rejects China's protest on Arunachal being conferred full statehood (12); The Vice President R. Venkataraman inaugurates the 400th anniversary celebrations of Narayaneeyam by Melpathur Bhattathiri at Guruvayur (13); Film actress Smitha Patil (39) dies of brain hemorrhage (14); No-trust move against Barnala fails to take off in Punjab (15).

THE CONSTITUTION

The Constitution of India came into effect on 26th January 1950. It was drawn up by a Constituent Assembly initially summoned on Dec.9, 1946. The constitution was adopted on Novermber 26, 1949.

The Constituent Assembly was initially summoned for undivided India. With the partition of India in June 1947, the delegates of the Pakistan areas ceased to be members of the Assembly. On August 14, 1947, the Constituent Assembly met again as the Sovereign Constituent Assembly for the Dominion of India under the Presidentship of Sachidananda Sinha. On the demise of Sinha, Dr. Rajendra Prasad became the President of the Assembly. A draft Constitution was published in February 1948. The Constitution was finally adopted on 26th Nov. 1949. It came into effect on 26tth Jan. 1950.

The Indian Constitution closely follows the British Parliamentary model but differs from it in one important respect. In Britain, the Parliament is supreme. No court can question the validity of any law passed by the British Parliament. In India the Constitution is supreme, not the Parliament. So the Indian courts are vested with the authority to adjudicate on the constitutionality of any law passed by Parliament.

This position, otherwise clear, was complicated by the action of the Constituent Assembly itself. Having promulgated the Constitution, the Constituent Assembly converted itself into the first Indian Parliament. Thus the creator of the constitution, the Constituent Assembly, became the creature of the constitution, the Parliament. In the very second year of promulgating the constitution, the first Parliament set out amending it. This was the *First (Constituion) Amendment Act, 1951.* This amendment planted the seeds of future troubles between the Parliament and the Judiciary. It clearly showed that the Parliament possessed both constituent and legislative powers. Subsequent Parliaments naturally claimed plenary powers to amend the constitution; in any manner they thought fit.

The powers claimed by Parliament, on the one hand, and the rights vested in the Judiciary, on the other, were bound to clash in the long run. The conflict at first centred round specific provisions of law passed by Parliament. When any such provision was declared unconstitutional, the laws were either amended to suit the constitution or the constitution was amended to suit the laws. Such a course naturally precipitated the question whether Parliament possessed unlimited powers to amend the constitution.

The question came up in the Keshavananda, Bharati case (1973) where the Supreme Court ruled that the power of amendment vested in the Parliament under Art. 368 (relating to amendment of the constitution) cannot be so exercised as to alter or destroy the basic structure of the constitution. If Parliament had the power to destroy the basic structure of the constiution, it would cease to be a creature of the constitution and become its master.

The question came up again in the Minerva Mills case, after the 42nd amendment was passed. The 42nd amendment effected a constitutional revolution, whereby Parliament overthrew the supremacy of the constitution and made itself supreme in its stead. The first question before the court was whether the Parliament had unbounded powers to amend the constitution.

The Supreme Court delivered its judgement in the Minerva Mills case on May 9, 1980. The court held that the Parliament cannot expand its amending power under Art. 368, so as to abrogate the constitution or to destroy its essential feature. Their Lordships observed, "The donee of a limited power cannot by exercise of that power convert the limited power into an unlimited power". The avowed purpose of the 42nd amendment was to remove doubts.

"But", said the Court, "after the decision of this court in Keshavananda Bharati case, there could be no doubt as regards the limitations of Parliament's power to amend the constitution. The new clause (5) of Art. 368 confers on the Parliament an undefined power to amend the constitution, even so as to distort it out of recognition...No constituent power can conceivably go higher than the skyhigh power conferred by clause (5), for, it even empowers the Parliament to repeal provisions of the constitution, that is to say, destroy democracy and substitute for it a totally antithetic form of government."

Another question before the Court was whether the Parliament had the power to bar the jurisdiction of the court to enquire into the constitutional validity of laws. On this question the court ruled that "Our constitution is founded on a nice balance of power among the three wings of the State, namely the Executive, the Legislature and the Judiciary. It is the function of Judges, nay their duty, to pronounce upon the validity of laws."

"Human dignity" (sic), the court observed, "has not yet devised a system by which the liberty of the people can be protected, except through the intervention of courts of law". Again, "The conferment of the right to destroy the identity of the constitution, coupled with the provision that no court of law shall pronounce upon the validity of such destruction, seems to us a transparent case of transgression of the limitations on the amending power."

A third question which the court had to consider was the precedence of Directive Principles over Fundamental Rights. This question was first projected by the 25th amendment. This amendment gave precedence to two clauses of Directive Principles as against Fundamental Rights. They are Art. 39(b) which related to the ownership and control of the material resources of the community and Art. 39(c) which concerned the question of concentration of wealth in a few hands to the detriment of the community.

The court conceded the application of the principle to the two clauses in question. In the 42nd amendment, this precedence was extended to all the Directive Principles. The court objected to this extension and ruled that "to destroy the gurantees given by Part III (Fundamental Rights) in order purportedly to achieve the goals of Part IV (Directive Principles) is plainly to subvert the constitution by destroying its basic structure".

So far only the three points mentioned above have been identified as Basic Features of the constitution. What the other basic features (if any) are, remains to be elucidated.

The Constitution consists of the following: 1. The Preamble. 2. Parts I to XXII covering Articles 1 to 395. 3. Schedules 1 to 10 * and 4. An Appendix‡.

The Preamble declares India a sovereign *Socialist Secular* Democratic Republic and lays down the primary objects of the constitution, namely, to secure to all citizens justice, social, economic and political, liberty of thought, expression, belief, faith and worship, equality of status and opportunity and fraternity assuring the dignity of the individual and the unity and the integrity of the nation.

The words *'socialist, secular'* and *'the unity and the integrity of the nation'*, were added by th 42nd Amendment.

Structure. India, that is Bharat, shall be a Union of States (Art. 1). The States and Territories thereof shall be as specified in the first Schedule (Art.2).

Distribution of Powers. The Union has exclusive power to make laws on all matters in List I of the Seventh Schedule (Union List). The States have exclusive power to make laws on all matters in List II (State List). The Union and States have concurrent powers to legislate on any matter enumerated in List III (Concurrent List) (Art. 246).

Residuary Powers. The Union has exclusive power to make laws on any matter not enumerated in the Concurrent List or State List (Art. 248).

Over-riding Powers. In case of any conflict between Union laws and State laws, the Union laws shall prevail (Art.254).

Citizenship. Citizenship rights are given to every person who is born in India or either of whose parents was born in India or who has been a resident of India for 5 years, immiediately preceding the commencement of the Constitution.

The Constitution of India commenced on the 26th January 1950.

Seven *Fundamental Rights* are granted to citizens under Arts. 12 to 35 of the Constitution (Part II). They are: 1. Right to Equality, 2. Right to Freedom, 3. Right Against Exploitation, 4. Right to Freedom of Religion, 5. Cultural and Educational Rights, 6. Right to Property and 7. Right to Consitutional Remedies, that is to say, all citizens are guaranteed the right to move the Supreme Court or the High Courts by appropriate proceedings for the enforcement of Fundamental Rights.

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* Schedule 10 was omitted by 36th Amendment, but was added again in 1985 by the 52nd Amendment.

‡ Appendix contains the order extending the application of the constitution to Jammu & Kashmir.

The 16th and 24th Amendments have considerably limited the exercise of Fundamental Rights. Two, in particular, (the Right to Freedom and the Right to Property) have been reduced to names by the 1st, 4th and 24th amendments. The State is empowered to pass laws imposing reasonable restrictions on the exercise of these two rights.

The Directive principles of state policy are contained in Arts. 36 to 51 of the Constitution (Part IV). These lay down 19 objectives covering a wide range of subjects, which the State shall endeavour to achieve. These are not enforceable at law like Fundamental Rights. Nevertheless, they are declared fundamental to the governance of the country.

Subsequent amendments starting with the 25th have attempted to give precedence to Directive Priciples over Fundamental Rights. The 25th amendment restricted such precedence to two objectives, contained in cl. (b) and (c) of Art. 39. They relate to the equitable distribution of material resources and the concentration of wealth in the hands of a few to the detriment of many. These, it may be noticed, were already secured by the amendments to Fundamental Rights which empowered the State to impose reasonable restrictions to the right to property. The 42nd amendment sought to extend this precedence to all objectives specified in Directive Principles. This provision was struck down by the Supreme Court (see supra.)

There shall be a *President of India* (Art. 52) who is the Executive head of State—[Art. 53—(1)]—and the Supreme Commander of the Armed forces Art. 53(2). The President shall be elected from an electoral college consisting of (a) the elected members of both Houses of Parliament and (b) the elected members of the Legislative Assemblies of the States (Art. 54). The President shall hold office for five years Art. 56(1) and is eligible for reelection (Art. 57).

The Vice-President shall be elected by the members of an electoral college consisting of the members of both houses of Parliament Art. 66(1). The Vice-President may hold office for five years (Art. 67), and shall be the ex-officio Chairman of the Council of States (Art. 64).

There shall be a *Council of Ministers* with the Prime Minister at the head to aid and advise the President in the exercise of his functions—[Art. 74(1)]. The Prime Minister shall be appointed by the President, and the other Ministers shall be appointed by the President, on the advice of the Prime Minister—Art. 75(1). The Ministers shall hold office during the pleasure of the President—Art. 75(2). The Council of Ministers (as at present constituted) consists of the Prime Minister and (1) Ministers who are members of the cabinet, (2) Ministers of State (Union Ministers) who are not members of the cabinet and (3) Deputy Ministers.

A Secretary to Government is the *administrative head* of a ministry and the principal adviser of the minister. When the volume of work in a ministry exceeds the manageable charge of the Secretary, one or more wings may be established under a Joint Secretary. A ministry is divided into divisions, branches and sections functioning under Deputy Secretaries, Under Secretaries and Section Officers respectively.

There shall be a *Parliament* for the Union, which shall consist of the President and two Houses, the Council of States (Rajya Sabha) and the House of the People (Lok Sabha)—Art 79.

The Council of States shall consist of not more than 238 elected representatives of States and Union Territories and 12 members to be nominated by the Presdient (Art. 80). The House of the People shall consist of not more than 500 members chosen by direct election from territorial constituencies in States and not more than 25 members to represent Union Territories (Art. 81).

The Council of States shall not be subject to dissolution but as nearly as possible one-third of its members shall retire, as soon as may be, after the expiry of 2 years. The House of the People shall continue for 5 years (unless sooner dissolved) from the date of its first meeting and no longer and the expiry of the said period of five years shall operate as dissolution of the House (Art. 83). This mandatory provision of dissolution may be extended for a year due to emergency.

The following committees are appointed to assist the Parliament in its deliberations: 1. Public Accounts Committee, 2. Estimate Committee, 3. Public Undertakings Committee, 4. Committee on Government Assurances.

In a presidential system of government like that of the USA, the three branches of government—the Legislature, the Executive and the Judiciary—are independent units. But in a Parliamentary system like that of India the Executive is subordinate to the Legislature. The Judiciary alone functions as an independent branch.

Chapter IV Part IV of the Constitution deals with judiciary. There shall be a *Supreme Court of India,* consisting of a Chief Justice of India and other Judges: Art. 124(1). The parliament has the power to increase the number of judges.

A judge of the Supreme Court is to be appointed by the President after consultation with the Chief Justice of the Supreme Court and shall hold office until the age of sixty-five and can be removed from office by the President, only after an address by each house of Parliament supported by more than two-thirds majority of members present and voting.

The Supreme Court has both original and appellate jurisdiction. The original jurisdiction is limited to questions between the Government of India and the States, or between the States inter se and to such other questions which involve "the existence or the extent of a legal right" (Art. 131). The Appellate Jurisdiction extends over all the High Courts in India (Art. 132).

The Attorney General. The President shall appoint a person who is qualified to be appointed as a judge of the Supreme Court, to advise the Government of India on legal matters (Art. 76). He has the right to speak and take part in the proceedings of either House and to be a member of any Parliamentary Committee but is not entitled to vote (Art. 88).

There shall be a *Comptroller and Auditor General of India* who shall be appointed by the President. He shall only be removed from office in like manner and on the like grounds as a Judge of the Supreme Court (Art. 148)(1). He exercises a general control over the accounts of the Union and State Governments (Art. 149). He is not eligible for further office either of the Union or State governments, once he has retired [Art. 148(4)].

Election Commission is to supervise and control all matters relating to elections to the Parliament and State Assemblies and to the offices of the President and Vice-President (Art. 324). The Election Commission may consist of the Chief Election Commissioner and such other Election Commissioners as the President may appoint from time to time. When any other Election Commissioner is appointed, the Chief Election Commissioner shall function as the Chairman of the Election Commission. The Chief Election Commissioner cannot be removed from office except in the same manner and on the same grounds as a judge of the Supreme Court (Art. 324).

The system of *Government in States* closely follows the pattern of the Union Government. The expression 'State' does not include the State of Jammu and Kashmir, unless otherwise indicated (Art. 152).

The Governor of a State is the Executive head of the State government (Arts. 155 and 156). He is assisted by a Council of Ministers, with the Chief Minister at the head (Art. 163). The Chief Minister is to be appointed by the Governor and other Ministers are to be appointed on the advice of the Chief Minister.

The Legislature of a State shall consist of the Governor and one or two houses of legislature, as the case may be (Art. 108). The following States have two Houses, the Legislative Council (Vidhan Parshad) and the Legislative Assembly (Vidhan Sabha); Bihar, Madhya Pradesh, Maharashtra, Karnataka and UP. The Legislative Assembly of a State may consist of not more than 500 and not less than 60 members (Art. 170). The total number of members in the Legislative Council, if any, shall not exceed one-third of the total number of members in the Assembly (Art. 171).

There shall be a High Court for each State, consisting of a Chief Justice and such other judges as the President may appoint (Arts. 214 and 216). A judge of the High Court can be removed from office by the President, in the same manner as he may remove a judge of the Supreme Court (Art. 217). The High Courts have original jurisdiction in such matters as writs and appellate jurisdiction over all subordinate courts in their jurisdiction.

Every state shall have an *Advocate General* to advise the Government on legal matters (Art. 165).

The *Union Territories* ordinarily have no

Council of Ministers or legislatures of their own. But the Parliament may *by law* create for any of the Union Territories a body, whether elected or partly elected and partly nominated to function as a legislature for the Union Territory or a Council of Ministers or both (Art. 239A).

Article 343 of the Constitution provides that the official language of the Union shall be Hindi in the Devanagari script and the form of numerals for official purposes, shall be the international form of Indian numerals; in other words, the Arabic numerals. English, which was originally to continue as the official language only upto Jan. 26, 1965, will under the Official Languages Act, 1963 continue to be used even after that date in addition to Hindi.

Art. 368 deals with *amendment of the Constitution.* A Bill for Amendment must be passed in each House by a majority of the total membership of that House and by a majority of not less than two-thirds of the members present and voting.

Amendments to certain parts of the Constitution, however, require ratification of the Legislatures of not less than one-half of the States by resolutions to that effect.

There are *Ten Schedules* to the constitution, the ninth being added by the First Amendment to the constitution in 1951 and the 10th by the 52nd Amendment in 1985.

First Schedule (under Articles 1 and 4) gives a list of the States and Territories comprising the Union.

States: 1. Andhra Pradesh, 2. Assam, 3. Bihar, 4. Gujarat, 5. Kerala, 6. Madhya Pradesh, 7. Tamil Nadu, 8. Maharashtra, 9. Karnataka, 10. Orissa, 11. Punjab, 12.Rajasthan, 13. Uttar Pradesh, 14. West Bengal, 15. Jammu and Kashmir, 16. Nagaland, 17. Haryana, 18. Himachal Pradesh, 19. Manipur, 20. Tripura, 21. Meghalaya, 22. Sikkin.

Union Territories: 1. Delhi, 2. Andaman and Nicobar Islands, 3. Laccadive, Minicoy and Amindivi Islands*, 4. Dadra and Nagar Haveli, 5. Goa, Daman and Diu, 6. Pondicherry, 7. Chandigarh, 8. Mizoram, 9. Arunachal Pradesh.

Second Schedule under Arts. 59(3), 65(3), 75(6), 97, 125, 148(3), 158(3)] consists of 5 Parts A to E.

Part A fixes the remuneration and emoluments payable to the President and Governors. The following emoluments per mensem shall be paid to the President: Rs.10,000. Governor of State: Rs.5,500. The President and the Governors of the States shall also be paid such allowances as were payable respectively to the Governor General of India and the Governors of the corresponding provinces immediately before the commencement of this Constitution. *Part B* has been deleted by the Constitution (Seventh Amendment) Act of 1956. *Part C* contains provisions as to the Speaker and the Deputy Speaker of the House of the People and the Chairman and the Deputy Chairman of the Council of States and the Speaker of the Legislative Assembly and the Chairman and the Deputy Chairman of the Legislative Council. *Part D* contains provisions as to emoluments of the judges of the Supreme Court and of the High Courts. Chief Justice of the Supreme Court Rs.5,000 per month. Any other judge of the Supreme Court Rs.4,000 per month. Chief Justice of High Courts Rs.4,000 per month. Any other judge of High Courts Rs.3,500 per month. *Part E* contains provisions as to the Comptroller and Auditor General of India. Pay Rs.4,000 per month.

Third Schedule (under Arts. 75(4), 99, 124(6), 148(2), 164(3), 188 and 219) contains forms of *Oaths and Affirmations.*

Fourth Schedule [under Arts. 4(1) and 80(20)] allocates seats for each State and Union Territory, in the Council of States.

Fifth Schedule [under Art. 244(1) provides for the administration and control of Scheduled Areas. This schedule provides for amendment by a simple majority of Parliament and takes it out of the ambit of Art. 368 (Amendment of the Constitution).

Sixth Schedule [under Arts. 214(2) and 275(1)] provides for the administration of Tribal Areas in Assam, Meghalaya and Mizoram. This is a lengthy schedule which goes into the details of the administration in the Tribal Areas concerned. This schedule can also be amended by a simple majority of the Parliament.

Seventh Schedule (under Art. 246) gives three Lists: *1. Union List* contains 97 subjects in which the Union government has exclusive authority. *2. State List* contains 66 subjects which are under the exclusive authority of State government. *3. Concurrent List* contains 47 subjects, where the Union and States have concurrent powers.

Eighth Schedule [under Arts. 344(1) and 351(1)] gives a list of 15 languages recognized by the Constitution: 1. Assamese, 2. Bengali, 3. Gujarati, 4. Hindi, 5. Kannada, 6. Kashmiri, 7. Malayalam, 8. Marathi, 9. Oriya, 10. Punjabi, 11., Sanskrit, 12. Sindhi, 13. Tamil, 14. Telugu, 15. Urdu.

Ninth Schedule [under Art. 31(B)] was added by the Constitution (First Amendment) Act 1951. It contains Acts and orders relating to land tenures, land tax, railways, industries, etc. passed by the State governments, and the Union government which are beyond the jurisdiction of civil courts.

The relevant Arrt. 31(B) reads as follows:

"None of the Acts and Regulations specified in the Ninth Schedule, nor any of provisions thereof shall be deemed to be void or ever to have become void on the ground that such Act, Regulation or Provision is inconsistent with or takes away or abridges any of the rights conferred by any provisions of this part and notwithstanding any judgment, decree or order of any court or tribunal to the contrary, each of the said Acts and/or Regulations shall subject to the power of any competent Legislature to repeal or amend it continue in force."

Tenth Schedule [under Articles 101, 102, 191 and 192) was added by the constitution (52nd Amendment) 1985. It contains the Anti-defection Act.

THE AMENDMENTS

With the Goa State Formation Act of 1987, the number of constitution Amendments has reached 58. As in the case of the American Constitution, some of the amendments have become better known than the constitutional provisos themselves. One of the peculiar features of the Indian Constitution is that various parts of it call for various processes of amendments.

The methods of amendment are three, according to the subject matter of the Article concerned. 1) Articles that may be amended by a simple majority of Parliament. These are mainly matters of detail like those provided in the Schedules. 2) Articles that may be amended by a two-thirds majority of both houses of Parliament. These are comparatively important matters. 3) Articles that require not only a two-thirds majority of Parliament but also ratification by at least one-half of the State Legislatures.

These are specifically mentioned. They are the following: Articles concerning the election of the President (Arts. 54 & 55), the powers of the Union Cabinet (Art. 73), the powers of State Cabinets (Art. 162), the High Courts in Union Territories (Art. 241), the establishment of the Supreme Court (Ch. IV, Part V), Constitution and powers of the High Courts (Ch. V, Part VI), Relations between the Union & State Legislatures (Ch. 1, Part XI), the Lists—Union List, State List and Concurrent List—in the Seventh Schedule, the representation of States in Parliament and the provisions of Article 368 itself (Part XX).

Article 368 (Part XX) lays down the genera procedure for Amendments. But Articles tha require only a simple majority in Parliamen do not fall in this category. Such Articles are indicated by a special clause attached to each of them which specifically excludes the operation of Art. 368 (see Art. 21, Sixth Schedule) Amendment of all other Articles comes withi the -scope of Art. 368.

Starting with the First (Constitution Amendment Act 1951 we have come down t the 58th Amendment in 1987. This works ou at an average of 1½ amendments per year

1. Constitution (First Amendment) Ac 1951. Besides making minor changes i Articles 15, 19, 85, 87, 174, 176, 341, 342, 37 and 375 this Act added two new Articles, 31- and 31-B and a new Schedule, the 9th Schedule.

This amendment has permitted reasonabl restrictions to be imposed by law on th exercise of the right of freedom of speech an expression in the interest of friendly relation with foreign States, or public order. It has als removed from the scope of judicial review restrictions imposed on the right of citizens t carry on any trade, business, industry o service where such restrictions have bee imposed with a view to enabling the State t undertake any scheme of nationalization.

Another clause of the Amendment authorizes the State to make special provision for the advancement of any socially and educationally backward class of citizens or for the Scheduled Castes and the Scheduled Tribes.

Two new Articles 31-A and 31-B were inserted. Article 31-A provides that no law providing for the acquisition by the State of any estate or of any rights therein or for the extinguishment or modification of any such rights shall be deemed to be void on the ground that it is inconsistent with, or takes away or abridges any of the rights conferred by any provision of this Part III.

Article 31-B provides that none of the acts and regulations specified in the Ninth Schedule nor any of the provisions thereof shall be deemed to be void, or even to have become void on the ground that such act, regulation or provision is inconsistent with, or takes away or abridges any of the rights conferred by any provisions of Part III and notwithstanding any judgement, decree or order of any court or tribunal to the contrary, each of the said acts and regulations shall continue in force.

2. Constitution (Second Amendment) Act, 1952, amended Article 81 with a view to readjusting the scale of representation in the House of the People, necessitated by the completion of the 1951 census.

3. Constitution (Third Amendment) Act, 1954, substituted entry 33 of the Concurrent List in the 7th Schedule by a new one including foodstuffs, cattle fodder, raw cotton and jute as additional items whose production and supply can be controlled by the Central Govt. if found expedient in the public interest.

4. Constitution (Fourth Amendment) Act, 1955. The Amendment provides that when the State compulsorily acquires private property for a public purpose, the scale of compensation prescribed by the authorizing legislation could not be called in question in a court. Another clause excludes the temporary taking over of a property by the State, either in public interest or to secure its better management, from the compensation clause. The amendment also operates as a saving clause for State monopolies. Seven new entries were also added to the 9th Schedule

5. Constitution (Fifth Amendment) Act, 1955, empowers the President to fix a time limit for State Legislatures to express their views on proposed Central laws affecting the area and boundaries etc. of their respective States.

6. Constitution (Sixth Amendment) Act, 1956, added a new entry to the Union List in the Seventh Schedule relating to taxes on the sale and purchase of goods in the course of Inter-State transactions.

7. Constitution (Seventh Amendment) Act, 1956. This act came into force on 1st Nov. 1956. It was passed for the reorganization of the States. It involved not only the establishment of new States and alterations in State boundaries but also the abolition of the three categories of the States and the classification of certain areas as Union Territories. This led to the amendment of Article 1 and the First Schedule of the Constitution. Among the other important Articles which were affected by this amendment were Article 131 on the original jurisdiction of the Supreme Court, Article 168 providing for bicameral legislature in certain States and Articles 216, 217, 220 and 224 dealing with the High Courts. Two new Articles 340-A and 350-B were added with a view to implementing the recommendations of the States Reorganization Commission regarding constitutional safeguards for linguistic minorities.

8. Constitution (Eighth Amendment) Act, 1959, extended the special provision relating to reservation of seats for the Scheduled Tribes and representation of Anglo-Indians in the House of the People and Legislative Assemblies of States, for a further period of ten years from Jan. 26, 1960.

9. Constitution (Ninth Amendment) Act, 1960, amended the first Schedule to the Constitution in order to give effect to the transfer of certain territories to Pakistan in pursuance of the agreements entered into between the Governments of India and Pakistan in Sept. 1958.

10. Constitution (Tenth Amendment) Act, 1961, incorporated former Portuguese enclaves of Dadra and Nagar Haveli within India and provided for their administration by the President.

11. Constitution (Eleventh Amendment) Act, 1961, obviated the necessity of a joint meeting of the two Houses of Parliament by forming them into an electoral college for the election of Vice-President. It also ameneded Art. 71 so as to make it clear that the election of the President or the Vice-President shall not be challenged on the ground of any vacancy, for whatever reason, in the appropriate electoral college.

12. Constitution (Twelfth Amendment) Act, 1962. The twelfth amendment was passed to include the territories of Goa, Daman and Diu as a Union Territory in the First Schedule to the Constitution and to empower the President to make regulations for the peace, progress and good government of these areas.

13. Constitution (Thirteenth Amendment) Act, 1962, created Nagaland as the sixteenth State in the Indian Union.

14. Constitution (Fourteenth Amendment) Act, 1962, conferred necessary legislative powers on Parliament to enact laws for the creation of Legislature and Council of Ministers in Union Territories. Former French establishments of Pondicherry, Karaikal, Mahe and Yanam were specified in the Constitution as the Union Territory of Pondicherry.

15. Constitution (Fifteenth Amendment) Act, 1963, was a minor amendment empowering the President of India, in consultation with the Chief Justice of India to make final decisions on the dispute about a High Court Judge's age. It also shortened the procedure for disciplinary action against State employees.

16. Constitution (Sixteenth Amendment) Act, 1963, empowered the State to enact any legislation, imposing reasonable restrictions on the exercise of fundamental rights by citizens, so as to protect the sovereignty and integrity of India.

It also amended the forms of oath, provided in the Third Schedule.

17. Constitution (Seventeenth Amendment) Act, 1964, provided that if the State acquires land under the personal cultivation of the owner and within the ceiling limit, compensation had to be paid at the market value of the property so acquired. The amendment also extended the protection of the 9th Schedule to 64 State land enactments.

18. Constitution (Eighteenth Amendment) Act, 1966, provided for the linguistic reorganization of the Punjab into a Punjabi-speaking State called Punjab and a Hindi-speaking State called Haryana.

It further provided that the word 'state' in cls. (a) to (e) of Art. 3 includes a Union Territory and clarified that Parliament had the power to form a new State or Union Territory by combining any part of a State or Union Territory with any part of any other State or Territory.

19. Constitution (Nineteenth Amendment) Act, 1966, is a minor amendment clarifying the duties of the Election Commission.

20. Constitution (Twentieth Amendment) Act, 1966, validated the appointment of certain District Judges, irregularly appointed.

21. Constitution (Twenty-first Amendment) Act, 1967, provided for the inclusion of Sindhi in the Eighth Schedule to the Constitution.

22. Constitution (Twenty-second Amendment) Act, 1969, empowered Parliament to carve a new State (Meghalaya) out of Assam.

23. Constitution (Twenty-third Amendment) Act, 1969, provided for the extension of the reservation of seats for Scheduled Castes and Tribes and the nomination of members of the Anglo-Indian community for another 10 years.

24. Constitution (Twenty-fourth Amendment) Act, 1971, affirmed the Parliament's power to amend any part of the Constitution, including Fundamental Rights by amending Articles 368 and 13 of the Constitution. This neutralized the decision in Golaknath case.

A peculiar feature of the Amendment was that the President was bound to give his assent to amending Acts, when they were presented to him, thus making Presidential assent an automatic act.

25. Constitution (Twenty-fifth Amendment) Act, 1971, barred the jurisdiction of courts over acquisition laws in regard to the adequacy of the amount paid in lieu of take-over. The word "compensation" in the case of take-over was deleted and the word "amount" substituted.

A new clause provided that if any law was passed to give effect to the Directive Principles contained in clauses (b) and (c) of Article 39 and contained a declaration to that effect, it shall not be questioned on the ground that it takes away or abridges Fundamental Rights or on the ground that it does not give effect to the principles contained in the declaration.

26. Constitution (Twenty-sixth Amendment) Act, 1971. This Amendment withdrew the recognition given to former rulers of Princely

States and abolished the privy purses granted to them.

27. Constitution (Twenty-seventh Amendment) Act, 1971. Under this Amendment two new Union Territories, Mizoram and Arunachal Pradesh, were set up.

28. Constitution (Twenty-eighth Amendment) Act, 1972. The Amendment deleted Article 314 of the Constitution, which gave protection to the ICS officers' conditions of service and privileges.

29. Constitution (Twenty-ninth Amendment) Act, 1972. This Amendment included the Kerala Land Reforms (Amendment) Act, 1969 and the Kerala Land Reforms (Amendment) Act, 1971, in the Ninth Schedule to the Constitution so as to protect these Acts from judicial review.

30. Constitution (Thirtieth Amendment) Act, 1972. This Amendment curtailed the number of appeals to the Supreme Court. Formerly appeals to the Supreme Court were decided on the basis of the valuation of the subject matter. The Amendment made only such cases which involve a substantial question of law, appealable to the Supreme Court.

31. Constitution (Thirty-first Amendment) Act, 1973, increased the upper limit of elective seats in the Lok Sabha from 525 to 545.

32. Constitution (Thirty-second Amendment) Act, 1973, implemented the 6-point programme for Andhra Pradesh.

33. Constitution (Thirty-third Amendment) Act, 1974, invalidated the acceptance of resignations by members of the State Legislatures and Parliament, which were made under duress or coercion, or any other kind of involuntary resignations.

34. Constitution (Thirty-fourth Amendment) Act, 1974, provided constitutional protection to 20 land reform acts passed by the various States, by including them in the 9th Schedule to the Constitution.

35. Constitution (Thirty-fifth Amendment) Act, 1974, provided for Associate State status to Sikkim.

36. Constitution (Thirty-sixth Amendment) Act, 1975, made Sikkim a State of the Indian Union—the 22nd State, in fact.

37. Constitution (Thirty-seventh Amendment) Act, 1975, provided for a Legislative Assembly and a Council of Ministers for the Union Territory of Arunachal Pradesh.

38. Constitution (Thirty-eighth Amendment) Act, 1975, amended Arts. 113, 213, 289 B, 352, 356, 359 and 360 of the Constitution. It made the declaration of Emergency by the President and the promulgation of Ordinances by the President, Governors, and Administrative Heads of Union Territories non-justiciable (beyond the purview of the judiciary).

It laid down that the satisfaction of the President, Governor or Authority as to the necessity of immediate action shall be final and shall not be questioned by any court on any ground. It also entitled the President to issue different proclamations on different grounds.

39. Constitution (Thirty-ninth Amendment) Act, 1975, amended Arts. 71 and 329 of the Constitution and the Ninth Schedule. It placed the election of the President, Vice-President, Prime Minister and the Speaker beyond judicial scrutiny.

It provided for a new forum for the disposal of election questions relating to the incumbents of the four high offices—the President, the Vice-President, the Prime Minister and the Speaker.

When a person has been appointed Prime Minister or chosen as a Speaker during the pendency of an election petition in respect of his (or her) election such petition shall abate. His (or her) election will remain valid, notwithstanding any law made by Parliament before the commencement of the Constitution (Thirty-ninth Amendment) Act, 1975 in so far as it relates to elections. Such elections shall not be deemed to be void or ever to have become void on any ground whatsoever.

40. Constitution (Fortieth Amendment) Act, 1976, amended Art. 297 and declared that "all land, minerals and other things of value underlying the ocean within the territorial waters or the continental shelf or the exclusive economic zone of India shall vest in the Union and shall be held for the purpose of the Union."

"The limits of the territorial waters, the continental shelf, the exclusive maritime zone or other maritime zones of India shall be such as may be specified from time to time by or under any law made by Parliament".

41. Constitution (Forty-first Amendment) Act, 1976, raised the retiring age of State

Public Service Commission members from 60 to 62. This does not affect the members of the Union Public Service Commission who retire at the age of 65.

42. Constitution (Forty-second Amendment), Act, 1976, was passed by Parliament on November 2, and after having been ratified by half of the State Assemblies received Presidential assent on December 18, 1976. The Amending Act is a piece of comprehensive legislation containing 59 clauses and touching upon varied constitutional questions.

The main features of the Amending Act may be summarized as follows:

1. The Preamble has been altered from 'sovereign democratic republic' to 'sovereign socialist, secular, democratic republic' and 'unity of the nation' into 'unity and integrity of the nation'.

2. The Directive Principles of the Constitution have been given precedence over Fundamental Rights, wherever they came into conflict.

3. Similarly prevention or prohibition of anti-national activities takes precedence over Fundamental Rights.

4. Certain Fundamental Duties are laid down which have to be observed by all citizens. Non-compliance with or refusal to observe the duties shall be punishable at law. No court shall question the validity of such actions.

5. Number of seats in the Lok Sabha and the State Assemblies which are based on population shall remain frozen as in the 1971 census till 2001 A.D., that is to say, for 2 more Decennial Censuses.

6. The duration of the Lok Sabha and the State Assemblies is increased from 5 to 6 years.

7. The quorum for the Lok Sabha and the State Assemblies prescribed in the Constitution has been removed which means that a quorum is no longer a constitutional necessity.

8. The Parliament may decide what offices are offices of profit under the government or what amounts to corrupt practice in disqualifying an elected member from any house of legislature.

9. Rights and privileges of members and committees of legislatures are to be decided by the concerned houses from time to time.

10. Proclamation of Emergency may be made applicable to any part of the country (instead of the whole country). Similarly emergency can be lifted from any part of the country while it remains in force in other parts.

11. The duration of a Presidential proclamation taking over the government of a State shall be one year instead of six months.

12. The Union has the power to deploy armed forces to any State and to delimit cantonment areas in States. The State cannot exercise any power in the disposition of the armed forces or the administration of cantonment areas.

13.No court can question the competence of the Parliament to amend the constitution in any manner.

14. The Supreme Court alone can adjudicate on the validity of any Central law and the High Courts can adjudicate on the validity of the state laws. If the validity of any State law is dependent on the validity of any Central law or vice versa, then the Supreme Court can adjudicate on them. In any case, any decision on constitutional invalidity has to be made by a two-thirds majority of sitting judges where the number is not less than 5. If the number of judges is less than five the judgement has to be unanimous. It is also provided that the High courts have no power to make an interim order, where it will impede or obstruct any enquiry or action by the Government.

15. The President's liability to act in accordance with the advice of the Council of Ministers has been made practically mandatory.

43. Constitution (Forty-third Amendment) Act, 1977 which received Presidential assent on April 3, 1978 (i) omits some Articles added by the Forty-second Amendment and (ii) alters other Articles.

The omissions relate to articles that give unfettered authority to the Executive to eliminate or restrict the powers of the Supreme Court and High Courts. The alterations apply to Arts. 145, 226, 228 and 366.

All these omissions and alterations imply that the constitution has reverted to the position that prevailed before the passing o the Forty-second Amendment, at least in matters specifically referred to in the Amendment.

44. Constitution (Forty-fourth Amendment) Act, 1978 which received Presidential assent on April 30, 1979 brought in a number of changes. These apply to the following: Arts. 19, 22, 30, 31, 31A, 31C, 38, 71, 74, 77, 83, 103, 105, 123, 132, 133, 134A, 139A, 150, 165, 172, 192, 194, 213, 217, 226, 227, 239B, 257A, Chapter IV, Part XX, 329, 329A, 352, 356, 358, 359, 360, 361, 371F, Ninth Schedule and Forty-second Amendment Sections 18, 19, 21, 22, 31, 32, 34, 35, 56 and 59.

Of these Arts. 19, 31, 31A, 31C, 38, 77, 83, 105, 123, 132, 133, 134A, 139A, 150, 165, 194, 213, 217, 225, 226, 227, 239B, 257A, 329, 329A, 371F and Sections 18 to 59 of Forty-second Amendment itself are either omissions or deal with details or are comparatively unimportant. Others deserve notice.

Art. 22. This article deals with preventive detention. The important change is that preventive detention for a period of more than 2 months can be ordered only on the recommendation of an Advisory Board, whose Chairman shall be a judge of a High Court.

Art. 30. The Amendment of this article reads as follows:

In article 30 of the Constitution, after clause (1), the following clause shall be inserted, namely:-

"1A). In making any law providing for the compulsory acquisition of any property of an educational institution established and administered by a minority, referred to in clause (1), the State shall ensure that the amount fixed by or determined under such law for the acquisition of such property is such as would not restrict or abrogate the right guaranteed under that clause."

Art. 71. This Art. deals with questions relating to the election of President or Vice-President. The amended article reads:

"71 (1). All doubts and disputes arising out of or in connection with the elections of a President or Vice-President shall be inquired into and decided by the Supreme Court whose decision shall be final.

(2) If the election of a person as President or Vice-President is declared void by the Supreme Court, acts done by him in the exercise and performance of the powers and duties of the office of President or Vice-President, as the case may be, on or before the date of the decision of the Supreme Court shall not be invalidated by reason of that declaration.

(3) Subject to the provisions of this Constitution, Parliament may by law regulate any matter relating to or connected with the election of President or Vice-President.

(4) The election of a person as President or Vice-President shall not be called in question on the ground of the existence of any vacancy for whatever reason among the members of the electoral college electing him."

Art. 74 deals with the powers of the President vis-a-vis the Cabinet. The amended article is as follows:

In article 74 of the Constitution, in clause (1), the following proviso shall be inserted at the end, namely:—

"Provided that the President may require the Council of Ministers to reconsider such advice, either generally or otherwise, and the President shall act in accordance with the advice tendered after such reconsideration."

Art. 83 restores the old term of 5 years to the Lok Sabha.

Art. 103 relates to questions concerning the disqualification of a member of Parliament. This is now to be decided by the President after consultation with the Election Commission.

Art. 172 restores the 5-year term of State Legislatures.

Art. 192 relates to the disqualification of a member of a State Legislature. This is now to be decided by the Governor after consultation with the Election Commission.

Chapter IV Part XX is an addition. The amendment reads:

In Part XII of the Constitution, after Chapter III, the following Chapter shall be inserted, namely:—

Chapter IV—Right to Property.

300 A. "No person shall be deprived of his property save by authority of law".

Arts. 352, 356, 358, 359 and 360 deal with Emergency. An internal emergency can now be declared on "armed rebellion" breaking out and not for "internal disturbance". Other provisions relating to the emergency in Art 356, 358, 359 and 360 have also been substantially altered.

Art. 361 restores protection to publications of proceedings of the Parliament and State Legislatures.

Ninth Schedule entries 87, 92 and 130 have been deleted.

45. Constitution (Forty-fifth Amendment) Act, 1980, passed by Parliament on the 25th of January 1980.

Amended article 334 of the Constitution by substituting "thirty years" with "forty years".

This was to extend the safeguards in respect of reservation of seats in Parliament and State Assemblies for Scheduled Castes and Scheduled Tribes as well as for the Anglo-Indians for a period of 10 years, i.e., upto January 29, 1990.

46. The Constitution (Forty-sixth Amendment) Act, 1982—Article 269 was amended so that the tax levied on the consignment of goods in the course of inter-state trade or commerce shall be assigned to the states. This article was also amended to enable Parliament to formulate by law principles for determining when a consignment of goods takes place in the course of inter-state trade or commerce. A new entry 92B was also inserted in the Union List to enable the levy of tax on the consignment of goods where such consignment takes place in the course of inter-state trade or commerce.

47. The Constitution (Forty-seventh Amendment) Act, 1984—This amendment is intended to provide for the inclusion of certain land reform Acts in the Ninth Schedule to the Constitution with a view of obviating the scope of litigation hampering the implementation process of those acts.

48. The Constitution (Forty-eighth Amendment) Act, 1984—This was an amendment to Clause 5(q) article 356 of the Constitution for the continuation of President's rule in Punjab for another year.

49. The Constitution (Forty-ninth Amendment) Act, 1984—The Government of Tripura recommended that the provisions of the Sixth Schedule to the Constitution may be made applicable to the tribal areas of that state. The amendment involved in this Act is intended to give a constitutional security to the autonomous District Councils functioning in the state.

50. The Constitution (Fiftieth Amendment) Act, 1984—By article 33 of the Constitution, Parliament is empowered to enact laws determining to what extent any of the rights conferred by Part III of the Constitution shall, in their application to the members of the Armed Forces or the Forces charged with the maintenance of public order, be restricted or abrogated so as to ensure the proper discharge of their duties and the maintenance of discipline among them.

Article 33 was amended so as to bring within its ambit—

(i) the members of the Forces charged with the protection of property belonging to, or in the charge or possession of, the State; or

(ii) Persons employed in any bureau or other organization established by the State for purposes of intelligence or counter intelligence; or

(iii) Persons employed in, or in connection with, the telecommunication systems set up for the purposes of any Force, bureau or organization.

51. The Constitution (Fifty-first Amendment) Act, 1985, replaces the section dealing with "Scheduled Castes and Scheduled Tribes except in tribal areas of Assam, Nagaland, Meghalaya, Arunachal Pradesh and Mizoram" with "the Scheduled Tribes except the Scheduled Tribes in the autonomous district of Assam"—in articles 330 and 332.

52. The Constitution (Fifty-second Amendment) Act, 1985. The amendment effected by a Bill popularly called Anti-Defection Bill, was to curb defection by disqualification. The following are the salient features of the Act:-

(1) A Member of Parliament or State Legislature belonging to any political party shall be disqualified for being a member of that House:

(a) if he has voluntarily given up his membership of such political party; or (b) if he votes or abstains from voting in such House contrary to any direction issued by the political party to which he belongs or by any person or authority authorized by it in this behalf without obtaining in either case, the prior permission of such political party, persons or authority, and such voting or abstention has not been condoned by such political party, person or authority within 15 days from the date of such voting or abstention.

(2) An elected member of a House who has been elected as such otherwise than as a

candidate set up by any political party shall be disqualified for being a member of the House if he joins any political party after such elections.

(3) A nominated member of a House shall be qualified for being a member of the House if he joins any political party after the expiry of six months from the date on which he takes his seat after complying with the requirements of Articles 99 or, as the case may be, Article 188.

53. *Constitution (53rd Amendment) Act 1986*, inserted a new article (371—G) conferring full statehood on Mizoram.

54. *Constitution (54th Amendment) Act 1986*, Amended part D of the 2nd schedule giving effect to the increases of salaries of the Chief Justice and Judges of Supreme Court and High Courts. An enabling provision for changes in the salaries of judges in future by Parliament by law,was made in Art.125 and221.

55. *Constitution (55th Amendment) Act 1986*, conferred full statehood on Arunachal Pradesh.

56. *Constitution (56th Amendment) Act, 1987*, provided for a Hindi translation of the constitution.

57. *Constitution (57th Amendment) Act, 1987*, sought to make a special provision for the setting up of the new state of Goa. Consequently Daman and Diu were separated from the former to form a Union Territory.

58. *Constitution (58th Amendment) Act, 1987*, amended Article 332 of the constitution providing for special arrangements with regard to reservation for scheduled tribes in the north-eastern states of Arunachal Pradesh, Nagaland, Mizoram and Meghalaya, until readjustment of seats on the basis of the first census after 2000 AD.

POLITICAL PARTIES

The Party System in India has developed on lines quite dissimilar to those which obtain in Western democracies. The main trends noticeable in India are absence of polarization or the lack of a powerful opposition, a cleavage of parties on national and state bases and endless proliferation.

The main reason why a polarization of parties never took place in India was that the Indian National Congress had completely dominated the national scene. Besides, the opposition itself had only a nominal existence in Parliament. In fact, till 1970, the opposition leader was not even formally recognized. The first opposition leader to be recognized as such, was Dr. Ram Subhag Singh, who was the leader of the Opposition Congress when the Congress split in 1970.

When the Janata Party came to power at the Centre in 1977 the opposition leader was given the status and rank of a Cabinet Minister. Y. B Chavan was the first opposition leader to enjoy the status.[‡]

Instead of polarizing at the national level into ruling and opposition parties, another sort of polarization took place at national and state levels. Political parties soon came to be classified as national and state parties. The national parties function on an all-India basis.

They are integrative in character and ideologically committed to some form of political philosophy. The state parties have no special ideology. They are usually centred round local leaders and are mainly interested in local questions. Many of these parties are communal in character.

The fortunes of national parties depend very much upon the degree of power that state parties wield in ther respective states. But since national parties are better organized and have much greater financial resources, the chances of any state party getting the better of a national party, ultimately, are however rather remote.

Many are hard put to explain why political parties tend to multiply in India at such prodigious rates. During the 30 years that have elapsed, the country has seen a proliferation of political parties such as no other country in the world has witnessed. A rough tally yields a hundred political parties of varied hues and shades that have come into existence since independence.

[‡] The Opposition Leader is a fictitious personage in most of the new democracies. In 1964, out of the 113 states who were members of the UN only 30 had a recognized opposition in Parliament. Since 1964 one-party states have become fashionable and Opposition Leaders as a class appear to be on their way out from history.

One explanation that has been offered is that the formation and functioning of political parties in India are not regulated by law.

In contrast, we may notice the conditions under which a political party may be formed in the Federal Republic of Germany (W. Germany). In FRG every political party has to be registered under the law. Membership registers have to be maintained, accounts have to be kept and generally political parties have to function in an orderly manner.

Of the 100 and odd parties scattered throughout the length and breadth of India, hardly a score deserves notice. The rest is made up of people, who cluster round displaced local leaders or hang on to sheer parochialisms, in the hope that their turn will come some day. Many of them come to life during election time and then go into hibernation till the next election. But to the dismay of the voter, they never disappear altogether. They exist only to swell the number of candidates, cloud the issues, and spread confusion all round.

Under the Election Symbols (Reservation & Allotment) order 1968, the Election Commission has the right to recognize political parties for allotment of symbols. Every candidate is allotted a symbol. If a candidate belongs to a political party the symbol is allotted to the party and the candidates use it on behalf of the party.

The symbol is important, a large number of voters being illiterate. They cannot identify the candidates (or the party) whom they support or would like to support by reading their names on the ballot paper or for that matter on placards or bill boards. The only thing that helps them to identify the candidates is the symbol. In fact they vote for the symbol rather than the candidate.

It is the duty of the Election Commission to allot symbols for the various parties and/ or the candidates whenever an election is announced. It is for this purpose that the Election Commission distinguishes between *recognized* and *unrecognized* parties. If a party is recognised, a particular symbol is 'reserved' for it. No other party or person can claim it or use it in the election campaign. Unrecognized parties, which include independent (unattached to any party) candidates, can always choose any symbol other than the reserved symbols.

The list of recognized parties is revised after every general election in the light of the votes polled by them. The general criterion for recognition is that a party should secure at least four per cent of the total votes cast in a state.

If any such political party is treated as a recognized political party in four or more states, it enjoys the status of a National Party throughout India. If recognized in less than four States, a party enjoys the status of a 'State Party' in the State or States in which it is a recognized political party.

When India became free there were only two political parties worth the name—the mammoth Indian National Congress and the diminutive Communist Party of India. With independence many new parties came on the scene. When the first elections were held (1951 Dec.—1952 Jan.) as many as 77 parties joined the fray.

The first important development was the breakup of the Communist Party in 1964 into two factions, right and left. The rightists retained the name and goodwill of the old Communist Party of India. The leftists formed a new party—the Communist Party (Marxist).

A more momentous development occurred in 1969. The monolithic Congress Party split into two—the party led by the Prime Minister Mrs. Indira Gandhi and the party led by the Congress president Nijalingappa. In the 1971 elections the Congress Party under Mrs. Gandhi won a massive majority in the Lok Sabha (350) while the party led by Nijalingappa made a poor show winning only a miserable 16 seats.

The most important development in party politics in 1974 was the formation of the *Bharatiya Lok Dal (BLD)* or the *People's Party of India* in August 1974 at Delhi. The new party was formed by the merger of seven existing parties, namely, *Bharatiya Kranti Dal (BKD), Swatantra, Samyukta Socialist Party, Utkal Congress, Kisan Mazdoor Party, Rashtriya Lok Tantric Dal and Punjab Khetibar Zamindar Sabha.*

In 1977 Mrs. Gandhi announced fresh elections to the Lok Sabha. The miniscule *opposition parties got together to offer a united challenge to the dominating Congress Party. Under Jaya Prakash Narain's inspiring lead the Jana Sangh, the Opposition Congress, the BLD and the newly formed CFD (Congress for Democracy) under Jagjivan Ram came together as the Janata Party* in May 1977 to offer a united front against the Congress led by Indira Gandhi.

The *Janata Party* won the elections gaining an absolute majority in the Lok Sabha, leaving only 135 seats for the Congress.

The Janata Party turned out to be a nine days wonder. Morarji Desai, the veteran congress leader, was elected leader of the party. He took over the government as Prime Minister on March 24, 1977. The new ministry put up a big show going into action on many fronts. But the writing on the wall was clear to all who cared to look beneath the surface. The Janata Party had been weighed in the balance and found wanting.

The fault lay in the leaders themselves. Petty infighting kept on returning like the proverbial bad penny. These finally led to the resignation of the Home Minister Charan Singh from the party's national executive and the parliamentary board. The Prime Minister reacted by asking Charan Singh and Raj Narain, the Health Minister, to resign from the cabinet.

The peace-makers intervened. In January 1979, Charan Singh returned to the cabinet as Deputy Prime Minister and Minister for Finance. But Jagjivan Ram, another leader, was also elevated as Deputy Prime Minister at the same time. The patch-work did not last long.

Charan Singh and his followers refused to support Desai as Prime Minister. So he was obliged to resign Prime Ministership in July 1979. But he did not resign from the leadership of the party. In the circumstances Charan Singh formed a new party called Janata (Secular) or Janata (S) for short. Morarji at last resigned the leadership of the party and Jagjivan Ram succeeded him.

Charan Singh and his supporters formed a new ministry while Jagjivan Ram continued as the leader of the opposition. Charan Singh, however, had to fall back on Mrs. Gandhi's party to maintain the requisite majority. Mrs. Gandhi withdrew her support on August 20, 1979 and the Charan Singh ministry fell.

However, as Prime Minister he advised the President to dissolve the Parliament and order fresh elections. The President asked Charan Singh to continue in the meantime as Prime Minister of a care-taker government. In view of the coming elections, Charan Singh and Raj Narain formed a new party—Lok Dal. But the two leaders soon fell out. In the elections that followed Mrs. Gandhi came back to power as the leader of the Indian National Congress, more familiarly spoken of as Indira Congress or Congress (I).

In July 1981 the Election Commission recognized Congress (I) as the legitimate successor of the old Indian National Congress and de-recognised the Congress faction led by Devraj Urs (Congress (U)) as a national party. In August Jagjivan Ram replaced Devraj Urs as President and Congress (U) became Congress (J). Subsequently the Maharashtra leader Sharad Pawar became the President of the breakaway Congress and Congress (J) transformed itself into Congress (S).

The Janata Party split up, the old Janata continuing with Chandrasekhar as President. The Lok Dal, the original splinter party started by Charan Singh, underwent many changes. It became Janata (K) after its President Karpoori Thakur, DMKP — Dalit Mazdoor Kisan Party - under Charan Singh himself and finally returned to hold its old name Lok Dal on the eve of 1985 by-election.

However, the major element in the old Janata Party, the Jana Sangh, gathered together under a new banner, the Bharatiya Janata Party, with A.B. Vajpayee as President. Meanwhile, a brand new party appeared on the horizon, the Democratic Socialist Party, with H.N. Bahuguna as President. Bahuguna became Vice President of Lok Dal in 1985.

ELECTIONS

The General Elections to the national parliament and state assemblies were held simultaneously till 1970. In 1971 this policy was given up. The national and state elections were 'de-linked' and held separately.

Although no explanation has been offered for this departure in policy, it was probably the clash of interests between national and state parties that prompted this change.

First General Election 1952. In the first general election held in 1952, fifty one parties contested out of which 21 entered the Lok Sabha.

Second General Election 1957. At the second general election, the Congress secured 371 out of 494 elective seats in the Lok Sabha.

Third General Election 1962. Out of 494 parliamentary seats the Congress won 361.

Fourth General Election 1967. At the fourth general election, the performance of the Congress party was comparatively poor. It secured only 283 seats out of 520.

Fifth General Election 1971. This was a mid-term election, the Lok Sabha having been dissolved on Dec. 27, 1971, one year and two months before the expiry of the full period. The results of the elections were startling. The Ruling Congress, under Indira Gandhi, swept the polls and came out with a massive majority of 350 out of 518 elective seats in the Lok Sabha.

On the 26th of June 1975 the President declared an emergency. This emergency was lifted only after the results of the sixth general election were announced, namely on the 22nd March, 1977.

During the emergency, the term of the Lok Sabha was extended to 6 years by the 42nd amendment. This extension was annulled by the 43rd amendment in 1977 and the old term of 5 years was restored.

Sixth General Election 1977. The 6th general elections (March 1977) brought the Janata government to power. Janata won more than 296 seats in a total of 542—a clear majority—while the Congress could muster only 153 seats.

Seventh General Election 1980. The 7th general elections (January 1980) returned Indira Gandhi to power again with a two-thirds majority in the Lok Sabha. The Congress (I) won 353 seats in a total of 542.

Eighth General Election 1984. Polling was held on 24th, 27th and 28th December 1984 in 508 constituencies. In a landslide victory the ruling Congress(I) under Rajiv Gandhi secured 401 seats.

Elections to five Lok Sabha seats were countermaned—following the gas leakage tragedy in Bhopal and the death of candidates in the other four constituencies, viz., Srikakulam and Rajampet (A.P.) Chail (U.P.) and

Latest Party Position

As on 31st December 1987

Lok Sabha

Congress (I)	410
Telugu Desom	30
C.P.M.	22
Janata Party	13
A.D.M.K.	11
C.P.I.	6
A.G.P. (Assam)	6
N.C.	3
Akali Dal (Badal)	3
Lok Dal	3
R.S.P.	3
B.J.P.	2
Muslim League	2
Forward Bloc	2
D.M.K.	2
Akali Dal (Barnala)	2
Kerala Congress	2
Independent and Others	16
Vacancies	6
Total	544

Rajya Sabha

Congress (I)	151
Telugu Desom	11
C.P.M.	14
Janata Party	10
A.D.M.K.	11
C.P.I.	4
A.G.P. (Assam)	2
N.C.	1
Akali Dal	2
Lok Dal	9
R.S.P.	1
B.J.P.	9
Muslim League	1
Forward Bloc	1
D.M.K.	3
Kerala Congress	1
Janata (G)	1
Sikkim Gana Samgram Parishad	1
Nominated	6
Independents	4
Vacancies	1
Total	244

Madras North (Tamil Nadu).

Polling in these 5 constituencies was held on 28-1-1985. Congress (I) won in Chail and Bhopal, Telugu Desam in Srikakulam and Rajampet and DMK in Madras North.

The normal term of a state legislative assembly is five years, from the date of appointment for its first meeting.★ Election to every legislative assembly is direct and on the basis of adult suffrage.

The general elections to the state assemblies, since independence, present a confused picture, primarily because new states and territories have been created, and many territorial adjustments among the old and the new have been made.

As early as 1953, Andhra Pradesh was carved out in the south. This was followed by the large-scale reorganization of states in November 1956. Next, the state of Bombay was bifurcated in May 1960 into Maharashtra and Gujarat. The latest reorganization has come about as a result of the North Eastern Areas (Reorganization) Act 1971. The north eastern region of the country now has five states, namely, Assam, Nagaland, Meghalaya, Manipur and Tripura and two union territories, namely, Mizoram and Arunachal Pradesh.

Territorial reorganization has led to consequential changes on the election scene. The composition of state legislative assemblies has altered, delimitation of assembly constituencies has been done afresh or readjusted wherever necessary and orders relating to scheduled castes and scheduled tribes have been modified.

Besides, mid-term elections in various states have added their own confusion. These elections come at odd times upsetting the statutory pattern of general elections. Between the first general election in 1951-52 and the fifth general election in 1972, there have been as many as 20 mid-term elections in different states.

March 1985

Andhra Pradesh: Total seats 294 (countermanded 2); — Telugu Desam: 202; Congress (I): 49; CPI: 11; CPI(M): 11; BJP: 8; Majlis 3; Janata 2; Ind: 6.

Cycle of Ill Luck

Dame luck has turned her back on the Congress Party every tenth year after it first took over power from the British in 1947.

The party lost to the Marxists in Kerala in 1957 paving the way for the establishment of the first democratically-elected communist government in the world.

In 1967, it was worsted at the hustings in as many as nine states and could muster only just 128 seats in Bihar's 318 seat assembly, nine in Kerala's 133-member house and 50 in the then Madras State's 296-member legislature.

In the 1977 general election the Janata Party ousted it from power at the centre and in 14 states in the worst-ever debacle suffered by the party.

The year 1987 finds the party out of power in as many as 10 of India's 25 states with its latest defeat in Haryana in 1987 being the most humiliating.

Orissa: Total seats: 147 (Countermanded 2): — Congress (I): 117; Janata: 20; CPI: 1; BJP: 1; SUCI 1; Jagrata Orissa 1; Ind:4.

Rajasthan: Total seats: 200; (Countermanded 2): — Congress (I): 113; BJP: 38; Janata: 10; CPI(M): 1; DMKP: 27; Ind:9.

Himachal Pradesh: Total seats: 68; (elections held for 65); — Congress (I): 55; BJP: 7; DMKP: 1; Ind: 2.

Maharashtra: Total seats: 288; — Congress (I): 162; Cong(S) 54; Janata: 20; BJP: 16; PWP: 13; CPI: 2; CPI(M): 2; Ind: 19.

Bihar: Total seats: 324; (Countermanded 5): — Congress (I): 192. DMKP: 38; Janata 11; BJP: 12; CPI: 12; JMM: 10; Cong.(S): 1; CPI(M): 1; Ind: 21.

Gujarat: Total seats: 182; — Congress (I): 149; Janata: 14; BJP: 11; Ind: 8.

Uttar Pradesh: Total seats: 425 (Countermanded 3); — Congress (I): 266; DMKP: 85; BJP: 16; CPI: 6; CPM: 2; Janata: 19; Cong.(S): 4; Ind: 24; Others: 71.

Karnataka: Total seats: 224; — Janata: 139; Congress (I) 66; CPI: 4; CPI(M): 2; BJP: 2; MES: 3; Ind: 8.

★ The term of state assemblies was extended to 6 years by the 42nd Amendment. The 43rd Amendment restored the old period of 5 years.

Madhya Pradesh: Total seats: 320; — Congress (I): 250; BJP: 58; Janata: 5; Congress (S): 1; Ind: 6.

Sikkim: Total seats: 32; —SSP: 30; Congress (I) 1; Ind: 1.

Pondicherry: Total seats: 30; — Congress (I): 15; AIADMK: 6; DMK: 5; Janata: 2; Ind: 2.

September 1985

Punjab: Total seats: 117; Seats declared: 115; (election in two countermanded); — Akali Dal (L) 73; Congress (I) 32; BJP 4; CPI 1; Janata 1; Independents 4.

Punjab: Lok Sabha: Total seats: 13; Akali Dal (L): 7; Congress (I) 6.

December 1985

Assam: Total seats: 125; (excluding one countermanded); Asom Gana Parishad (AGP): 64; Congress 25; United Minorities Front (UMF): 17; Congress (S): 4; CPM: 2; Plains Tribals Council of Assam (PTCA): 3; Independents: 10.

Assam: Lok Sabha

Total seats: 14; Asom Gana Parishad (AGP): 7; Congress: 4; United Minorities Front (UMF): 1; Others: 2.

March 1987

West Bengal: Total seats: 294; CPI(M): 187; F.B.: 26; RSP: 18; CPI: 11; RCPI: 1; DSP: 2; WBSP: 4; F.B.(M): 2; Cong.(I): 40; Muslim League: 1; SUCI: 2.

Jammu and Kashmir: Total seats: 78; National Conference 40; Congress (I): 27; BJP: 4; MUF 4; Independents: 3.

Kerala: Total seats: 141 (including a nominated member). LDF: 79 (CPM-38, CPI-16, Janata-7, Cong.(S)-6, RSP-5, Lok Dal-1, Front backed independents-6 including one nominated member)

UDF: 60 (Cong.(I)-33, IUML-15, Kerala Congress(J)-5, Kerala Congress(M)-4, NDP-1, Front backed independents-2.) Independent: 2 (one CMP and one Cong.(I) rebel).

June 1987

Haryana: Total seats: 90; Elections held: 87; Lok Dal-(B): 59; BJP: 15; Cong. (I): 5; CPI: 1; CPM: 1; Independents: 6.

November 1987

Nagaland: Total seats: 60. Congress(I) - 34, NNDP - 18, NPP - 1, Ind. - 7.

RESERVE BANK TURNS 52

The Reserve Bank of India was established on April 1, 1935 in accordance with the provisions of the Reserve Bank of India Act, 1934. The Bank was originally constituted as a shareholders institution with a share capital of Rs. 5 crores. In the context of the need for close integration between the Bank's policies and those of Government, the entire share capital of the Bank was transferred to Government from January 1, 1949 in terms of the Reserve Bank (transfer to public ownership) Act, 1948. The Bank entered upon its career as a state-owned institution from that date.

The main functions of the Reserve Bank are 1) act as note-issuing authority, 2) act as bankers' bank and banker to Government, 3) to promote the growth of the economy within the general economic policy of the Government and ensure price stablility. 4) To operate the currency and credit system to the country's advantage. Since nationalization the Bank has been directed to perform certain development-oriented functions such as promotion of high growth-rate, full employment and sound external payments position.

A special feature of the Reserve Bank of India Act was the provision made for granting financial accommodation to the cooperative banking sector for financing agricultural operations and the marketing of crops. The Bank set up an Agricultural Credit Department mainly to study and provide consultative service to the Governments and banks and co-ordinate its activities with those of other agencies providing such credit.

The various *Departments of the Bank* are as under:

1) Secretary's Department.
2) Department of Banking operations and Development
3) Industrial Export Credit Department.
4) Rural Planning and Credit Department.
5) Urban Banks Department.
6) Exchange Control Department.

7) Department of Currency Management.
8) Department of Expenditure and Budgetary Control.
9) Department of Government and Bank Accounts.
10) Department of Financial Companies.
11) Department of Statistical Analysis and Computer Services.
12) Department of Economic Analysis and Policy.
13) Credit Planning Cell.
14) Department of Administration.
15) Personnel Policy Department.
16) Management Services Department.
17) Legal Department.
18) Inspection Department.
19) Premises Department.

Banking System in India: 'Commercial banks' and 'Co-operative banks' are the two main categories of banks in the country. Another category, the Regional Rural Banks is akin to commercial banks.

Commercial banks fall into four classes—banks in the public sector, those in private sector, foreign banks and regional rural banks. There are 28 banks in the public sector, comprising the State Bank of India and its 7 associate banks, 14 commerical banks in the private sector nationalized in July 1969, and 6 nationalized in April 1980. The public sector banks account for 90 per cent of the total banking business in India. Foreign banks number 18 and specialise in the field of foreign trade and international banking. There are 38 private sector banks. There are 107 regional rural banks. Co-operative banks serve mainly the needs of agriculture and allied activities, rural based industries and to a lesser extent, trade and industry in urban centres.

Another classification is that of scheduled and non-scheduled banks. Scheduled banks are those included in the second schedule to the Reserve Bank of India Act and the conditions for inclusion are (1) the bank must have a paid-up capital and reserves of an aggregate value of not less than Rs. 5 lakhs, (ii) it must satisfy Reserve Bank that its affiars are not conducted in a manner detrimental to the interests of its depositors and (iii) it must be a company as defined in the Companies Act, 1956. Scheduled banks enjoy the facility of obtaining accommodation from the Reserve Bank and of being considered for grant of authorised dealer's licence to handle foreign

SBI Among Top 100

The sole business institution to find a place in either the list of world's top 100 banks or companies is the State Bank of India, according to The Wall Street Journal.

It ranks 91st in the list of banks, but does not feature in the list of 100 largest companies. State Bank's total assets are valued at $ 28.415 billion as at the end of 1986 with capital just over $ 3 billion and net income $ 27 million.

The list of 100 largest banking companies is dominated by Japan bagging 11 of the first 20 places. The Citicorp of New York finds second place with assets of over $ 196 billion.

Mechanization In Banks

According to the recommendation of the Rengarajan Committee, bank mechanization programme is being implemented in two phases. The first phase (1985-87) is expected to cost Rs. 135 crores and the second phase (1988-89) Rs. 250 crores. During the first phase, about 10,000 electronic ledger posting machines (ELPM) are to be installed at 2500 branches along with 200 large micro processors at regional levels and 25 main frame systems. During the second phase, a further 6000 branches would have 20,000 ELPMs and 100 micro computers. This would mean transforming working of branches, regional and head offices.

The State Bank of India is installing its own private integrated telecommunication link, called SBINET, which would provide voice, teleprinter data and facsimile facilities.

The Reserve Bank has installed a communication network of its own, linking all its offices throughout India.

exchange. As on April 30, 1987, total number of scheduled banks was 289.

Non-scheduled banks are banking companies other than those included in the second schedule. There were 4 non-scheduled banks at the end of April 1987 as against 335 at the end of 1960 and 14 at the end of June 1969.

Finance for Agriculture: The Third Five-Year Plan document emphasises the urgent need for stepping up agricultural production in the country and the creation of a national level institution to provide funds by way of refinance to financing institutions for the propose. In this background, the Agricultural Refinance Corporation was established on July 1, 1963. In order to emphasise the developmental and promotional role assigned to it in addition to refinancing, the corporation was renamed as the Agricultural Refinance and Development Corporation in 1975. On July 12, 1982, the ARDC was merged into the newly formed National Bank for Agriculture and Development which was established to provide credit for the promotion of agriculture, small-scale industries, cottage and village industries, handicrafts and other rural crafts and other allied economic activities in rural areas with a view to promoting integrated rural development. The capital of Nabard is Rs. 100 crores, subscribed by the Central Government and the Reserve Bank. The Chairman of Nabard is a Deputy Governor of the Reserve Bank.

Deposit Insurance and Credit Guarantee Corporation: In the wake of certain bank failures, the Deposit Insurance Corporation was established on January 1, 1962. With the taking over on July 15, 1978 of the Credit Guarantee Corporation, the corporation was renamed as Deposit Insurance and Credit Guarantee Corporation. Deposits have been insured upto Rs. 30,000 per account. The rate of premium is 4 paisa per annum for every Rs. 100/- of the total amount of assessable deposits. The chairman is a Deputy Governor of the Reserve Bank.

Industrial Development Bank of India: The Industrial Development Bank of India (IDBI) was established as a wholly owned subsidiary of the Reserve Bank in July 1964. From February 16, 1976, the IDBI was delinked from the Reserve Bank. The Reserve Bank however, has nominees on the Board of Directors of the IDBI.

Unit Trust of India: The Unit Trust of India, commenced operations in July 1984, the Reserve Bank having subscribed 50 per cent of its initial capital of Rs. 5 crores. The share capital held by RBI was tranferred to the IDBI on its being delinked from the Reserve Bank in February 1976. The Reserve Bank nominates a trustee on the Unit Trust's Board of Trustees.

Training establishment of RBI: The foremost training institution, the Bankers' Training College, was established in 1964, to impart practical training to the supervisory staff of commercial banks, officers from RBI, government etc. Courses offered cover areas like credit appraisal, foreign exchange, inspection, development banking, performance budgeting etc.

The College of Agricultural Banking was set up in 1969 to train personnel of co-operative banks, land development banks, commercial banks, Regional Rural Bank, Nabard etc.

The RBI took the initiative in the establishment of the National Institute of Bank Management in 1968 to serve as nucleus of all training, research and development activity in the banking system. The NIBM conducts Bank Management Programme, to help the banks in the development of expertise among officers for studying organizational and management problems etc.

Supervision and Inspection: Under the Reserve Bank of India Act and the Banking Regulation Act, the RBI has been vested with extensive powers of supervision and control over commercial and co-operative banks. The most significant of the supervisory functions is inspection of banks, the basic objective being the safeguarding of the interests of depositors and building up and maintaining a sound banking system in conformity with the banking laws and regulations as well as the country's socio-economic objectives.

Exchange Control: Exchange Control was introduced in India in 1939 mainly to conserve non-sterling area currencies. Later on, the Foreign Exchange Regulation Act of 1947 was enacted. This Act was replaced by a comprehensive legislation, the new Foreign Exchange Regulation Act, 1973 enacted in 1974. The RBI is now vested with additional powers to regulate the investments and the trading, commercial and industrial activities in India of foreign companies (other than banking com-

The Average Value of Rupee

What is the average value of a rupee in 1986-87? On August 12, 1987 the Minister of state for finance B. K. Gadhvi in a written reply to Mr. Kali Prasad Pandey gave the following average value of rupee vis-a-vis major international currencies during the years 1984-85, 1985-86 and 1986-87:-

Rupees per unit of foreign currency

	1984-85	1985-86	1986-87
U.S. dollar	*11.8886*	*12.2349*	*12.7782*
Pound sterling	*14.8668*	*16.8467*	*19.0722*
Deutsche mark	*3.9877*	*4.5553*	*6.2970*
Japanese yen	*0.0487*	*0.0562*	*0.0802*
French franc	*1.3006*	*1.4908*	*1.9290*
Canadian dollar	*9.0065*	*8.8892*	*9.3095*
Australian dollar	*9.8944*	*8.4364*	*8.4913*
Swiss franc	*4.7797*	*5.4688*	*7.6068*

The exchange rate of rupee is determined with reference to the value of a basket of currencies, mainly of countries which are India's major trading partners. Thus the exchange rate of rupee-vis-a-vis other currencies moves upward or downward depending upon fluctuations in the value of the currencies, constituting the basket. In a regime of floating exchange rates, frequent movements in exchange parity rates is a normal phenomenon.

"It is not possible to isolate the impact of exchange rate movements on country's trade and other financial transactions, particularly when the level of such transactions is influenced by a large number of other contributory factors", Mr. Gadhvi said.

* * *

The value of the rupee is now one-seventh of what it was in 1960.

Taking 1960 as the base year, the purchasing power of the rupee, measured as the reciprocal of the all-India consumer price index for industrial workers, was only 14.22 paise in May 1987, Finance Minister N. D. Tiwari told the Lok Sabha in a written answer.

** ** **

How much does it cost to produce a one rupee and a Rs. 2 coin and note?

The cost of production of a one rupee coin is 59.87 paise and for a note it is 6.80 paise. The cost of producing a Rs. 2 coin is 65.89 paise and a note is 10.60 paise, the Minister of State for Finance Mr. Janardhan Poojary told the Rajya Sabha on August 14, 1987.

In a written reply, he said that certain studies made in the RBI have revealed that a one-rupee currency note is expected to last for about four to six months while a two-rupee note is expected to last for about six to eight months. However, no scientific study has so far been made on the life of a currency note in the country he said.

He said that 2000 million pieces of one-rupee coins were imported during the period 1985-87.

panies), foreign nationals, and non-resident individuals; also the holding of immovable property abroad and the trading, commercial and industrial activities abroad by residents have been brought under its control.

In the background of the far-reaching political and economic changes in the last five decades, the Reserve Bank has made significant contributions in diverse fields of activity. Apart from traditional central banking functions, it has promoted agricultural credit, helped build financial institutions and made great contribution in economic research and analysis. The Bank is bringing out a wealth of economic data, not easily available, in its annual Reports, currency and finance reports, statistical tables relating to banks in India and the monthly bulletins. The Reserve Bank has endowed chairs in leading universities to conduct research in monetary economics.

Industrial Finance and RBI

The major post-independence institutional innovations of relevance to long and medium-term finance for industry are the following:

1) *Industrial Finance Corporation of India (IFCI) — 1948*
2) *State Financial Corporations (SFCs) — 1952 onwards.*
3) *Industrial Credit and Investment Corporatin of India (ICICI) — 1955.*
4) *Life Insurance Corporation (LIC) — 1956.*
5) *Refinance Corporation for Industry — 1958, since merged with IDBI in 1964.*
6) *Industrial Development Bank of India (IDBI) — 1964.*
7) *Unit Trust of India (UTI) — 1964.*
8) *Industrial Reconstruction Corporation of India (IRCI) — 1971, now Industrial Reconstruction Bank of India.*
9) *General Insurance Corporation (GIC) — 1972.*
10) *Export-Import (Exim) Bank — 1982.*

Reserve Bank was directly involved as promoter or full owner in IFCI, SFCs, IDBI and UTI. For a long time, senior officials, Governors or Deputy Governors were chairmen of the boards of these institutions. It was only in 1976 that these institutions were delinked from the Reserve Bank. However, the Reserve Bank continues to provide loans and advances to the term-lending institutions as also to guide and advise them.

Commercial Banking: Bank branches expanded phenomenally since July 1969 assisting banks' deposit mobilization and their inclusion in organized banking system. The number of commercial bank offices increased more than six-fold from 8,321 on July 19, 1969 to 53,125 as of June 1986. The number of deposit accounts rose from 10 million at the end of March 1968 to 168 million by 1983. Aggregate deposits rose sharply from Rs. 4,646 crores in end-June 1969 to Rs. 93,000 crores by end-June 1986. The ratio of deposits to national income went up from 15.2 per cent to 48.9 per cent. About 40% of the financial saving of the household sector is in the form of deposits.

The population served per bank office declined sharply from 65,000 in 1969 to around 13,000 in 1986. The number of rural branches increased from 1833 to about 30,000 and this led to an increase in the proportion of rural branches to total from 22 per cent in July 1969 to 56 per cent at the end of June 1986. Regional imbalances have been evened out. In 1969, only 5 states accounted for half the total number of bank offices, whereas the share of the states in 1986 is less than a third of the total.

The origins of modern Indian banking can be traced to the three presidency banks of Bombay, Calcutta and Madras which functioned as bankers to the East India Company. Slowly they encompassed the banking business of the British Agency houses. Though proposals to amalgamate these three banks were mooted since 1866, it materialized only in 1921 and the Imperial Bank of India came into existence as a result. The Imperial Bank functioned as bankers to the Government of India and the provincial governments and also carried on commercial banking.

Joint-stock Banking: The principle of joint-stock banking with limited liability was recognized in 1860 which paved the way for private banks. By 1894, there were 14 joint-stock banks. In that year, the first wholly Indian bank, the Punjab National Bank was established.

The present structure of banking is the outcome of a long process of expansion, consolidation and re-organization over a

LIC—On To The Fourth Decade

On 1st September 1986, the Life Insurance Corporation of India has stepped into the fourth decade of its existence, as a premier public sector financial institution.

Somehow even before nationalization of Life Insurance business in 1956, there was a spirit of nationalism in the insurance industry—in the pre-independence days as well. Indian Life Insurance rode on the high crest of "Be Indian—Buy Indian" wave as the tide of nationalism swept the country in the thirties and forties. Many-a-public spirited man took life insurance as a profession.

Prince Dwarakanath Tagore was associated with the first life insurance company in India—the Oriental Life Insurance Society (1818). Sir. Pherozhah M. Mehta was one of the founders of the Oriental (Bombay). Lala Lajpat Rai and Pt. K. Santhana were the partners of Laxmi Insurance Company. Pt. Motilal Nehru, Dr. M. A. Ansari, Shri Srinivas Iyengar, Netaji Subash Chandra Bose—the great names associated with various insurance companies read like a 'who is who' of pre-independent nationalists.

After independence, the Avadi congress in 1955, adopted the goal of 'socialistic pattern of society'. This was followed by the nationalization of the Imperial Bank (1955) and Life Insurance business (1956). Life Insurance industry has not been nationalized anywhere else in the world. The only time it was attempted was in France, the experiment failed and the industry was returned to private sector.

But the story of LIC was different. It not only survived and thrived for thirty years but also inspired many other Afro-Asian countries to go in for similar corporations.

Spreading the message of insurance, the mobilization of savings, the channelization of life insurance funds for the benefit of policy holders as well as the community—remain some of the corporate objectives of the L.I.C. From Rs. 283.07 crores of new business in 1956 a whopping Rs. 9099 crores in March 1987 is a big leap.

Fourteen years after its formation the Corporation's business crossed Rs. 1000 crores in 1970-'71. The year 1975-'76 saw the business crossing 2000 crores. In 1981-'82 the achievement was Rs. 3000 crores. By 1984-'85 it reached 5000 crores and in '86-'87 it touched a new height of Rs. 9099 crores. The corporation proposes to introduce a business worth of Rs. 12,000 crores during the financial year ending in March 88.

The Life Insurance Corporation of India has been steadily adding to its assets and the life fund which was Rs. 365 crores as at 1-9-56 crossed the 10,000 crores mark in 1984-'85 with the total rising to Rs. 12,666 crores in 1985-'86. With annual increase in the availability of resources around Rs. 1600 crores and the continuing expansion of insurance business of different types the life fund may reach Rs. 20,000 crores by 1989-'90.

With the growth of the funds the complexities of investing it have also increased many times. Because of the sheer volume of the funds handled by it, the investment operations of the Corporation have a synergic effect on the market. L.I.C.'s investment in government securities is about 56%. In fact a total of 83% of the funds generated by L.I.C. is utilised either directly or indirectly by government agencies in the development of socially oriented ventures or for schemes like housing, electricity, water supply etc.

The income of the corporation was Rs. 2,941 crores in 1985-'86 against Rs. 2520 crores in the previous year with premium income accounting for Rs. 1783 crores and investment income for Rs. 1,127 crores. The average yield on investment has been rising steadily with average returns being 9.87% in 1984-'85 against 9.46% in the previous year.

General Insurance

The general insurance business transacted by various private insurance companies was nationalized in 1973 and the General Insurance Corporation was formed. The erstwhile private companies were grouped together as four subsidiaries of the newly formed corporation—National Insurance Co. Ltd., The New India Assurance Co. Ltd., The Oriental Insurance Co. Ltd. and United India Insurance Co. Ltd. The history of nationalized general insurance business is one of growth and development. During the last decade from 1977 to 1986 the GIC has increased its net premium income from Rs. 326 crores to Rs. 1366 crores and profit before tax from Rs. 113 crores to Rs. 289 crores.

G.I.C. has, to a great extent, succeeded in spreading the message of insurance to the remotest corners of the country. Now the corporation has a representative office in almost every district in the country and has started transacting business in fields where the private companies never ventured to penetrate. A comprehensive crop insurance scheme was introduced by G.I.C. in 1985 and a modified medical insurance scheme called Mediclaim was introduced in 1986. According to Ashok Goenka, Chairman, the corporation is thinking of a scheme for public liability insurance in the wake of growing awareness regarding environmental hazards and incidents like Bhopal gas tragedy.

period of three decades. During the World War II period, there was a mushroom growth of banking companies, with weak and undesirable features. With the gradual imposition of regulations, a large number of banking companies went into liquidation or were amalgamated with stronger units. The failure of the Palai Central Bank in 1960 led to the introduction of a scheme of compulsory merger/amalgamation of banks and of a scheme of Deposit Insurance.

The Imperial Bank was nationalized in 1955 and renamed the State Bank of India. In 1959-60 the State Bank of India took over as subsidiaries 7 provincial banks at Hyderabad, Bikaner, Jaipur, Indore, Travancore, Saurashtra, Mysore and Patiala.

Need for Nationalization: While Indian banking system made good progress during the sixties, the response of private sector banks was slow and halting. Large industrial houses and industries had easy access to banking facilities. Many sectors of the economy though conducive to the production of goods and services useful to the community were denied access to banking funds. On the eve of nationalization, commercial banks' operations were essentially urban-biased and maximisation of profit was their main guiding principle.

With a view to achieving a wider spread of banking facilities and bringing about a change in the lending pattern by directing increasing volume of credit to desired sectors and making banks an effective instrument of economic development, the scheme of social control was introduced by Government in early 1968. This was followed by nationalization of 14 major Indian banks on July 19, 1969. With the nationalization of 6 more private sector banks on April 15, 1960 and taking into account the State Bank of India and its seven subsidiaries, about 90% of the commercial banking is in the public sector.

Under an ordinance called the Banking Companies (Acquisition and Transfer of Undertakings) Ordinance 1969, the Government of India nationalized 14 major Indian scheduled banks having deposits of Rs. 50 crores or over as on the last Friday of June 1969. They were Central Bank of India, Bank of India, Punjab National Bank, Bank of Baroda, United Commercial Bank, Canara Bank, United Bank of India, Allahabad Bank, Indian Bank,

Profits of Nationalized Banks

(Rs. Crores)

Name of the Bank	1983	1984	1985	1986
1. Allahabad Bank	1.70	1.80	2.71	4.01
2. Andhra Bank	2.48	2.64	3.84	6.97
3. Bank of Baroda	8.60	7.01	9.86	19.01
4. Bank of India	5.11	5.30	8.53	14.30
5. Bank of Maharashtra	1.93	1.20	2.26	3.04
6. Canara Bank	4.96	5.51	11.01	18.16
7. Central Bank of India	3.99	3.06	6.75	24.08
8. Corporation Bank	0.93	1.10	1.37	2.00
9. Dena Bank	1.20	0.81	1.75	3.00
10. Indian Bank	1.40	1.41	3.52	6.25
11. Indian Overseas Bank	4.73	4.82	5.00	5.35
12. New Bank of India	0.72	0.36	2.04	2.41
13. Oriental Bank of Commerce	0.72	0.82	1.49	2.51
14. Punjab and Sind Bank	0.62	0.65	0.68	0.85
15. Punjab National Bank	8.53	9.01	12.00	15.01
16. Syndicate Bank	4.94	5.08	5.99	6.51
17. Union Bank of India	2.90	3.11	5.06	10.55
18. United Bank of India	1.36	1.18	0.22	0.23
19. United Commercial Bank	2.36	2.36	N.A.	N.A.
20. Vijaya Bank	0.05	0.06	0.31	2.66

Bank of Maharashtra and Indian Overseas Bank. This was enacted into law as the Banking Companies (Acquisition and Transfer of Undertakings) Act, 1970.

On April 15, 1980, under the Banking Companies (Acquisition and Transfer of Undertakings) Ordinance, 1980, 6 leading commercial banks with deposits of Rs. 200 crores and above were nationalized. There were Andhra Bank, Corporation Bank, New Bank of India, Oriental Bank of Commerce, Punjab and Sind Bank and Vijaya Bank.

Profits: Commercial bank profits increased from Rs. 118 crores in 1985 to Rs. 192 crores in 1986. Percentage increase in profits varies from as low as 7% in case of Indian Overseas Bank to 257% by Central Bank of India. Vijaya Bank and Union Bank of India also reported three digit percentage increase in profits. The profits of the State Bank of India are reported to be about Rs. 36 crores in 1986. It was observed that many banks had under-utilised infrastructure. A number of bank branches incurred losses owing to their inability to generate sufficient surplus to cover their operating costs.

According to the chairman of the Indian Banks Association, banking industry has turned a new leaf in the crucial area of profitability. Higher profits during the past two years are attributable to conscious efforts on the part of banks towards better funds management, rationalization of service charges and enlargement of capital base of the banks by the Government and certain conscious measures taken by the Reserve Bank to augment banks' earning capacity.

Banking in India

(Rs. Crores)

	1970-71	1984-85	1985-86	Dec. 86
Aggregate Deposits	5,906	72,244	85,288	1,00,964
Bank Credit	4,684	48,953	55,916	60,551
Investments	1,362	28,138	30,536	37,180
Cheque clearances	27,599	2,41,507	2,90,146	2,44,540
Commercial bank offices	11,540	50,980	53,123	53,324
Bank rate	6.00	10.00	10.00	10.00

NEW PATH FOR EDUCATION

Modern Education in India has been the legacy of the British Raj. Now the government has decided to restructure the whole pattern to make it "an effective instrument for taking the country into the 21st century."

The National Policy on Education, approved by the Parliament in 1986, seeks to establish, a National system of education, which lays down an overall curricular frame work and a core curriculum to establish comparability of competence at the end of various stages of education all over the country, reinforce the integrative aspects of society and culture and also establish a value system necessary for an egalitarian democratic and secular society.

In pursuance of the programme of action for the implementation of the new policy, the Government has launched a phased time-bound programme to cover approximately 40 million illiterates by 1990.

During the Seventh Plan, some 64 million additional children would have to be brought into schools, with at least 28 million of them passing through the formal system and the remaining 36 million taking into the non-formal system.

The current school drop-out rate was an alarming 76.6 per cent. If this was to be brought down, there had to be the right social climate for it. Adult education has to be made a fully people's movement. With 64 per cent of the country's population still illiterate, it has also to take the form of a massive movement of functional literacy.

Education is practically a State subject, although it is included in the Concurrent List. The Central Government has little to do with it, particularly at the crucial primary level. In secondary education, the Central government comes into the picture. However, in higher education and research it is the Central government that dominates the scene.

With the Central and State governments sharing powers and the States themselves differing in their administrative tactics, it is no wonder that the educational picture of India shows wide regional disparities. It is in this context, that a National Policy on Education was formulated.

The National Policy on Education adopted by the Parliament far back in 1968 was mainly based on the recommendations of the Education Commission under Dr. D. C. Kothari. The policy stressed the following objectives.

(i) Free and compulsory education upto the age of 14; (ii) improved status, emoluments and education of teachers; (iii) three-language formula and development of regional languages; (iv) equalization of education of science and research; (v) development of education for agriculture and industry; (vi) improvement in quality and production of inexpensive text-books; and (vii) investment of 6 per cent of national income in education.

Keeping in view the goal enshrined in the Constitution, the National Education Policy 1986, accorded a very high priority to the programme of Universalisation of Elementary Education to ensure essential minimum education to all children upto the age of 14 years. A phased drive called *'Operation Blackboard'* has been envisaged in the policy to improve primary schools all over the country.

Although it has not been possible to attain the goal of universal enrolment, the progress achieved in increasing the enrolment has been remarkable. The total enrolment of children in class I-VIII increased from 22.75 million in 1950-51 to 109.635 million in 1984-85, thus registering a more than four-fold increase.

Of the total outlay of Rs. 63827 million for education in the Seventh Plan (1985-90), the amount earmarked for elementary education is 28.6 per cent — Rs. 18305 million.

Education in all schools upto class 8, is now free in all States and Union Territories except for boys in classes 7-8 in Uttar Pradesh.

Legislation for compulsory education, as per constitutional directive, exists in 16 States and 3 Union Territories, namely, Andhra Pradesh, Assam, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal, Andaman and Nicobar Islands, Chandigarh and Delhi. In Himachal Pradesh, the Act covers the entire elementary stage (classes I-VIII), while in the remaining States/Union Territories it covers only the primary stage (classes I-V).

The National Policy on Education provides for opening of residential schools for the talented children. These schools are named *Navodaya Vidyalayas.* It is proposed to open such schools in each district in the country during the Seventh Plan.

The Navodaya Vidyalayas are aimed at providing opportunities to the talented children

School Enrolment

(Figures in lakh)

	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87 (Target)
Age-Group 6-11						
Classes I-V	753.25	775.93	805.97	853.85	891.26	931.10
Percentage of age-group	87.76	89.87	93.3	92.0	95.36	99.20
Age-Group 11-14						
Classes VI-VIII	218.13	235.81	254.78	269.17	289.97	312.89
Percentage of age-group	43.96	46.90	50.7	52.15	55.63	59.76
Age-Group 6-14						
Classes I-VIII	971.38	1011.74	1060.75	1123.02	1181.23	1243.99
Percentage of age-group	71.71	74.05	78.01	77.76	81.14	85.08

to develop their full potentials and to promote national integration. Education in these schools would be free for all students. Against 81 Vidyalays sanctioned in 1986-87, sixty have already started functioning.

National Council of Educational Research & Training (NCERT), established on September 1, 1961, is registered under the Societies Registration Act (1860). The main objectives of the NCERT are to assist and advise the Ministry of Education and Culture in implementing policies and major programmes in the field of education, particularly school education.

Among multifarious activities the Council has taken up is revision of secondary level syllabi and textbooks under a collaborative arrangement with the Central Board of Secondary Education.

Most of the States have already completed evaluation of textbooks from the standpoint of national integration and have also revised the textbooks. Efforts are being made to expedite the work in a few States where the progress has been slow.

The Council organizes, every five years, national surveys of teacher education both at secondary and elementary levels. Work has been initiated on the Third National Survey of Elementary Teacher Education and Fourth National Survey of Teacher Education at the secondary level.

The Regional Colleges of Education under NCERT, Ajmer; Bhubaneswar, Bhopal and Mysore continued to organize various pre-service and in-service courses. The summer school-cum-correspondence courses that have been introduced to clear the backlog of untrained graduate teachers also continued to be organized.

The Board of High School and Intermediate Education, Rajputana including Ajmer, Mewar, Central India and Gwalior was established in 1929 by a Resolution of the Government of India. In 1952, the Board was given its present name *The Central Board of Secondary Education.*

The schools affiliated to the Board are located in all parts of the country and even abroad, giving the Board a place of pride in the field of school education. The schools affiliated to CBSE are expected to provide uniform school education cutting across State borders and linguistic areas. The underlying idea is to promote national integration through inter-state mobility of students. This arrangement also helps children of transferable persons to pursue uninterrupted studies.

An *Open School* was set up by the CBSE in 1979 for propagation of Distance Education in the country. It imparts secondary stage education through the use of Distance teaching techniques which include education through print material, personal contact programmes and other supportive services. The Open School has been conducting examination for its students since 1982-83 leading to Secondary School Certificate of CBSE.

With the idea of encouraging secondary schools having common syllabi and media of instruction for providing the facility of uniform education throughout the country for the children of transferable Central Government employees, including defence personnel, the scheme of *Central Schools* or *Kendriya Vidyalayas* was approved by the Government of India in November, 1962. To start with, 20 Regimental Schools were taken over as Central Schools or Kendriya Vidyalayas during the academic year 1963-64. Subsequently, *Kendriya Vidyalaya Sangathan* was set up as an autonomous organization to establish and run the Kendriya Vidyalayas.

With the opening of 63 new schools during 1984-85, at present the total number of Kendriya Vidyalayas is 633.

Education up to class 8 is free in Kendriya Vidyalayas. The amount of tuition fee for higher classes is linked to the pay of the parents in case they are employed in Central Government or Central Public Sector Undertakings/Autonomous Bodies. In other cases, tuition fee at a flat rate is charged. However, students belonging to Scheduled Castes and Scheduled Tribes and children of teaching and non-teaching staff of Kendriya Vidyalayas are not charged any tuition fee.

The student enrolment in universities and colleges increased from 35.39 lakhs in 1984-85 to 35.71 lakhs in 1985-86. The enrolment of women students during 1985-86 was 10.59 lakhs as against 10.21 lakhs during the previous year.

Coordination and determination of standards in higher education is a subject in the Union list and is a special responsibility of the Central Government. This responsibility is discharged mainly through the *University Grants Commission* which was established in

IIT student strength 1985-86.

IIT	*Under Graduate*	*Post Graduate & Research*	*Out-turn*
Kharagpur	*1456*	*1427*	*791*
Bombay	*1143*	*1194*	*807*
Madras	*1090*	*1221*	*792*
Kanpur	*1221*	*935*	*703*
Delhi	*994*	*1316*	*774*

1953 under an Act of Parliament. Nine Universities, commonly known as *Central Universities* are at present functioning under Acts of Parliament. Besides, the Central Government have established agencies for promotion and coordination of research efforts in specialized fields. There are four such national agencies at present, namely the *Indian Council of Social Science Research, the Indian Council of Historical Research, the Indian Council of Philosophical Research* and the *Indian Institute of Advanced studies*.

The UGC is at present providing assistance to 19 centres of Advanced Study and 62 Departments of Special Assistance in Science, Engineering & Technology and 10 centres of Advanced Study and 25 Departments of Special Assistance in Humanities and Social Sciences.

The nine Central Universities are Aligarh Muslim University, Aligarh, University of Delhi, Delhi, University of Hyderabad, Hyderabad, Jawaharlal Nehru University, New Delhi, Indira Gandhi Open University, New Delhi, North-Eastern Hill University, Shillong, Viswabharati, Santiniketan, Benaras Hindu University, Varanasi and Pondichery University.

The five *Indian Institutes of Technology* at Kharagpur, Bombay, Madras, Kanpur and Delhi were established as premier centres of education and training in engineering and applied sciences and to provide adequate facilities for post-graduate studies and research.

The Institutes conduct under-graduate programmes leading to Bachelor's degree in various fields of engineering and technology. They also offer integrated Master's degree courses of five years' duration in Physics, Chemistry and Mathematics, two-year M.Tech. degree courses in various specializations and one-year post-graduate Diploma courses in selected areas. In addition, the Institutes offer Ph.D. Programmes in different branches of Engineering, Science, Humanities and Social Sciences. There are also advanced centres of training and research in each institute in identified areas of specialization.

The Government of India has established four *Indian Institutes of Management* at Ahmedabad, Bangalore, Caluctta and Lucknow.

Fourteen Regional Engineering Colleges were set up one each in the major states during the Second and Third Plan periods to enable the country to meet the increased need for trained personnel during subsequent plan periods. The fifteenth college at Silchar (Assam) was opened in 1977 and the sixteenth at Hamirpur in Himachal Pradesh in 1986.

While all the colleges offer first degree courses in Civil, Mechanical and Electrical Engineering, some of them also offer courses in Chemical, Metallurgical, Electronics, Mining and Architecture Engineering. Thirteen of these colleges are also conducting post-graduate courses. Of these, nine are conducting Industry-oriented courses in specialized fields like Design and Production of high pressure boilers and accessories, Heavy machines for a steel plant, Transportation Engineering, Industrial and Marine Structure, Integrated Power system etc.

School of Planning and Architecture, New Delhi was established in July, 1955 as the School of Town and Country Planning to provide facilities for training in Rural, Urban and Regional Planning and to cater to the needs of Central, States and Local Departments of Town Planning. It is a 'Deemed'

University now.

With the setting up of Indira Gandhi National Open University in New Delhi, the Central University in Pondicherry and Dr. M.G.R. Medical University in Madras the number of Universities and University level institutions in the country has increased to 159.

Of these 105 are traditional universities while others are professional/technical institutions. There are 24 Agricultural Universities, 4 Medical Institutions and 10 Technical Institutions.

Following is the list of Universities and University level institutions in the country.

1. Agra University, Agra.
2. Aligarh Muslim University, Aligarh.
3. Allahabad University, Allahabad.
4. All India Institute of Medical Sciences, New Delhi.
5. Amravati University, Amravati.
6. Andhra University, Visakhapatnam.
7. Andhra Pradesh Agricultural University, Hyderabad.
8. Andhra Pradesh Open University, Hyderabad.
9. Anna University, Madras.
10. Annamalai University, Annamalainagar.
11. Assam Agricultural University, Jorhat.
12. Avadh University, Faizabad.
13. Awadhesh Pratap Singh University, Rewa.
14. Banaras Hindu University, Varanasi.
15. Banasthali Vidyapith, Banasthali, Rajasthan.
16. Bangalore University, Bangalore.
17. M.S. University of Baroda, Baroda.
18. Berhampur University, Berhampur.
19. Bhagalpur University, Bhagalpur.
20. Bharatiar University, Coimbatore.
21. Bharathidasan University, Tiruchirappalli.
22. Bhavnagar University, Bhavnagar.
23. Bhopal University, Bhopal.
24. Bidhanchandra Krishi Vishwavidyalaya.
25. Bihar University, Muzzaffarpur.
26. Birla Institute of Technology & Science, Pilani.
27. Birsa Agricultural University, Ranchi.
28. University of Bombay, Bombay.
29. University of Bundelkhand, Jhansi.
30. University of Burdwan, Burdwan.
31. University of Calcutta, Calcutta.
32. Calicut University, Calicut.
33. Central Institute of English & Foreign languages, Hyderabad.
34. Central University, Pondicherry.
35. Chandra Shekhar Azad University of Agriculture & Technolgy, Kanpur.
36. University of Cochin, Cochin.
37. Dakshina Bharat Hindi Prachar Sabha, Madras.
38. Dayalbagh Educational Institute, Agra.
39. University of Delhi, Delhi.
40. Devi Ahilya Vishwavidyalaya, Indore
41. Dibrugarh University, Dibrugarh.
42. Dr. Hari Singh Gour Vishwavidyalaya, Sagar.
43. Dr. M.G.R. Medical University, Madras.
44. Gandhiji University, Kottayam.
45. Gandhigram Rural Institute, Madurai.
46. Garhwal University, Srinagar.
47. Gauhati University, Guwahati.
48. University of Gorakhpur, Gorakhpur.
49. Govindh Ballabh Pant University of Agriculture & Technology, Nainital.
50. Gujarat Agricultural University, Dantiwada.
51. Gujarat Ayurveda University, Jamnagar.
52. Gujarat University, Ahmedabad.
53. Gujarat Vidyapith, Ahmedabad.
54. Gulbarga University, Gulbarga.
55. Guru Ghasidas University, Bilaspur.
56. Gurukula Kangri Vishwavidyalaya, Hardwar.
57. Guru Nanak Dev University, Amritsar.
58. Haryana Agricultural University, Hissar.
59. Himachal Pradesh University, Shimla.
60. Himachal Pradesh Krishi Vishwavidyalaya, Palampur.
61. University of Hyderabad, Hyderabad.
62. Indian Agricultural Research Institute, New Delhi.
63. Indian Institute of Science, Bangalore.
64. Indian Institute of Technology Bombay.
65. Indian Institute of Technology, New Delhi.
66. Indian Institute of Techology, Kanpur.
67. Indian Institute of Technology, Kharagpur.
68. Indian Institute of Technology, Madras.
69. Indian School of Mines, Dhanbad.
70. Indian Statistical Institute, Calcutta.
71. Indian Veterinary Research Institute, Izatnagar.
72. Indira Kala Sangeet Vishwavidyalaya, Khairagarh.
73. Indira Gandhi National Open University, New Delhi.
74. International Institute for Population Science, Bombay.
75. Jadavpur University, Calcutta.
76. Jamia Millia Islamia, New Delhi.
77. University of Jammu, Jammu.
78. Jawaharlal Nehru Krishi Viswavidyalaya, Jabalpur.
79. Jawaharlal Nehru Technological University, Hyderabad.
80. Jawaharlal Nehru University, New Delhi.
81. Jiwaji University, Gwalior.
82. University of Jodhpur, Jodhpur.
83. Kakatiya University, Warangal.
84. University of Kalyani, Kalyani
85. Kameshwar Singh Darbhanga Sanskrit University, Darbhanga
86. Kanpur University, Kanpur.
87. Karnatak University, Dharwad
88. Kashi Vidyapeeth, Varanasi
89. University of Kashmir, Srinagar
90. University of Kerala, Trivandrum
91. Kerala Agricultural University, Trichur.
92. Konkan Krishi Vidyapeeth, Dapoli
93. Kumaun University, Nainital

94. Kurukshetra University, Kurukshetra.
95. Lalit Narayan Mithila University, Darbhanga.
96. University of Lucknow, Lucknow.
97. University of Madras, Madras.
98. Madurai Kamaraj University, Madurai.
99. Magadh University, Bodh Gaya.
100. Maharshi Dayanand University, Rohtak.
101. Mahatma Phule Krishi Vidyapith, Ahmednagar.
102. Mangalore University, Mangalore.
103. Manipur University, Canchipur, Imphal.
104. Marathwada University, Aurangabad.
105. Marathwada Krishi Vidyapeeth, Parbhani.
106. Meerut University, Meerut.
107. Mohanlal Sukhadia Vishwavidyalaya, Udaipur.
108. Mother Teresa Women's University, Kodaikanal.
109. University of Mysore, Mysore.
110. Nagarjuna University, Guntur.
111. Nagpur University, Nagpur.
112. Narendra Dev University of Agriculture & Technology, Faizabad.
113. The National Law School of India, Bangalore.
114. North Bengal University, Darjeeling.
115. North Eastern Hill University, Shillong.
116. North Gujarat University, Patan, Mehsana Dt.
117. Orissa University of Agriculture & Technology, Bhubaneswar.
118. Osmania University, Hyderabad.
119. Pondicherry University, Pondicherry.
120. Punjab University, Chandigarh.
121. Patna University, Patna.
122. University of Poona, Poona.
123. Postgraduate Institute of Medical Education and Research, Chandigarh.
124. Punjab Agricultural University, Ludhiana.
125. Punjab University, Patiala.
126. Punjabrao Krishi Vidyapeeth, Akola.
127. Rabindra Bharati University, Calcutta.
128. University of Rajasthan, Jaipur
129. Rajendra Agricultural University, Samastipur.
130. Ranchi University, Ranchi.
131. Rani Durgawati Vishwavidyalaya, Jabalpur.
132. Ravishankar University, Raipur.
133. Rohilkhand University, Bareilly.
134. University of Roorkee, Roorkee.
135. Sambalpur University, Sambalpur.
136. Sampurnanand Sanskrit Vishwavidyalaya, Varanasi.
137. Sardar Patel University, Vallabh Vidyanagar.
138. Saurashtra University, Rajkot.
139. School of Planning and Architecture, New Delhi.
140. Sher-e-Kashmir University of Agricultural Science & Technology, Srinagar.
141. Shivaji University, Kolhapur.
142. Shri Jagannath Sanskrit Vishwavidyalaya, Puri.
143. SNDT Women's University, Bombay.
144. South Gujarat University, Surat.
145. Sree Chitra Tirunal Institute for Medical Sciences & Technology, Trivandrum.
146. Sri Krishnadevaraya University, Anantapur.
147. Sri Padmavati Mahila Visvavidyalayam, Tirupati.
148. Sri Sathya Sai Institute of Higher Learning, Anantapur.
149. The Tirupati Kendriya Sanskrit Vidyapeetha, Tirupati.
150. Sri Venkateswara University, Tirupati.
151. Tamil University, Thanjavur.
152. Tamilnadu Agricultural University, Coimbatore.
153. Thapar Institute of Engineering and Technology, Patiala.
154. Tata Institute of Social Sciences, Bombay.
155. University of Agricultural Science, Hebbal.
156. Utkal University, Bhubaneswar.
157. Vidyasagar University, Midnapore.
158. Vikram University, Ujjain.
159. Visva Bharati, Santiniketan.

India is said to have the third largest number of scientific personnel in the world.

The world of Indian science is dominated by three academies. 1. *Indian National Science Academy, Delhi. 2. Indian Academy of Science, Bangalore and 3 National Academy of Sciences India, Allahabad.*

The responsibility for research in India is shared among various councils, committees and departments, all of them functioning under the aegis of the Central or State governments. Important among them are: The Council of Scientific and Industrial Research (CSIR), the Indian Council of Medical Research (ICMR), the Indian Council of Agricultural Research (ICAR), the Central Council for Research in Indian Medicine and Homeopathy, the National Committee on Environmental Planning and Co-ordination (NCEPC), the Department of Atomic Energy (DAE) and the Department of Space (DOS).

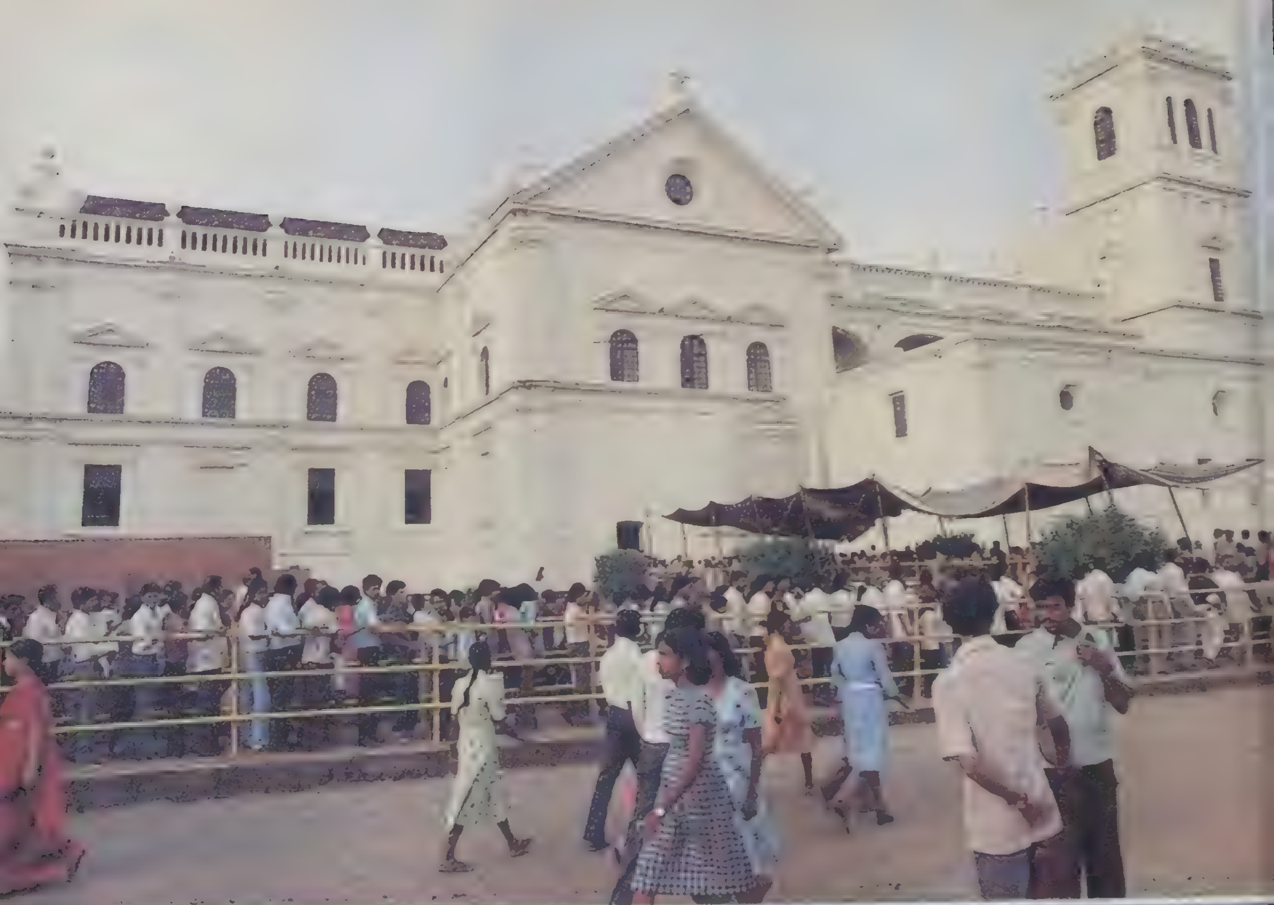
SALUTE TO

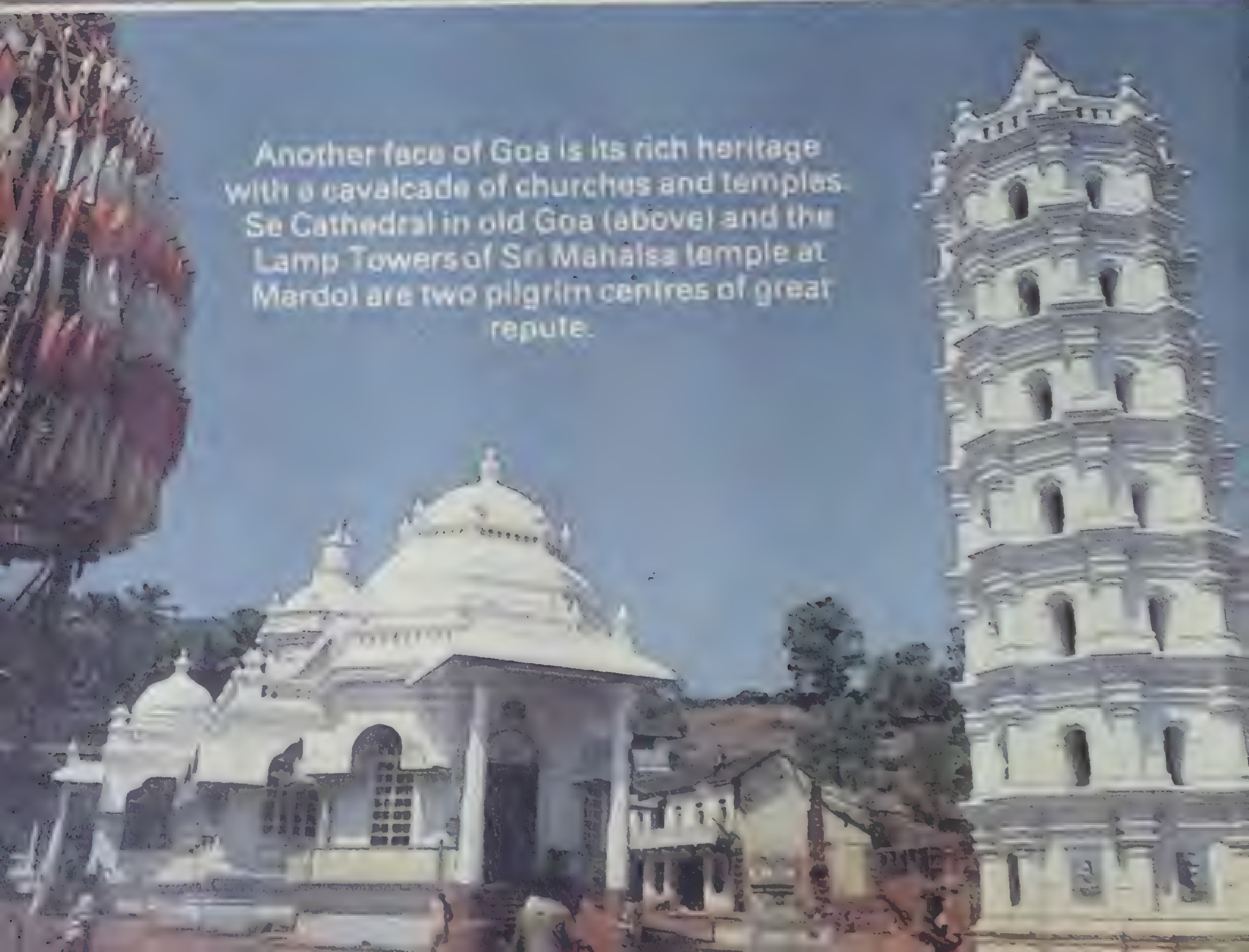
GOA

THE YOUNGEST STATE

A picture parade from the beaches of Goa to the snow-clad mountains of Sikkim.

GOA beckons you with its beautiful white sands and bright sun. Welcome to its beaches: Colva, Calangute Anjuna, Vagator, Baga, Miramar, Majorda, Cansaulim the very names will endlessl fascinate you. Goa is 656 km from Bombay. Has air and rail links.

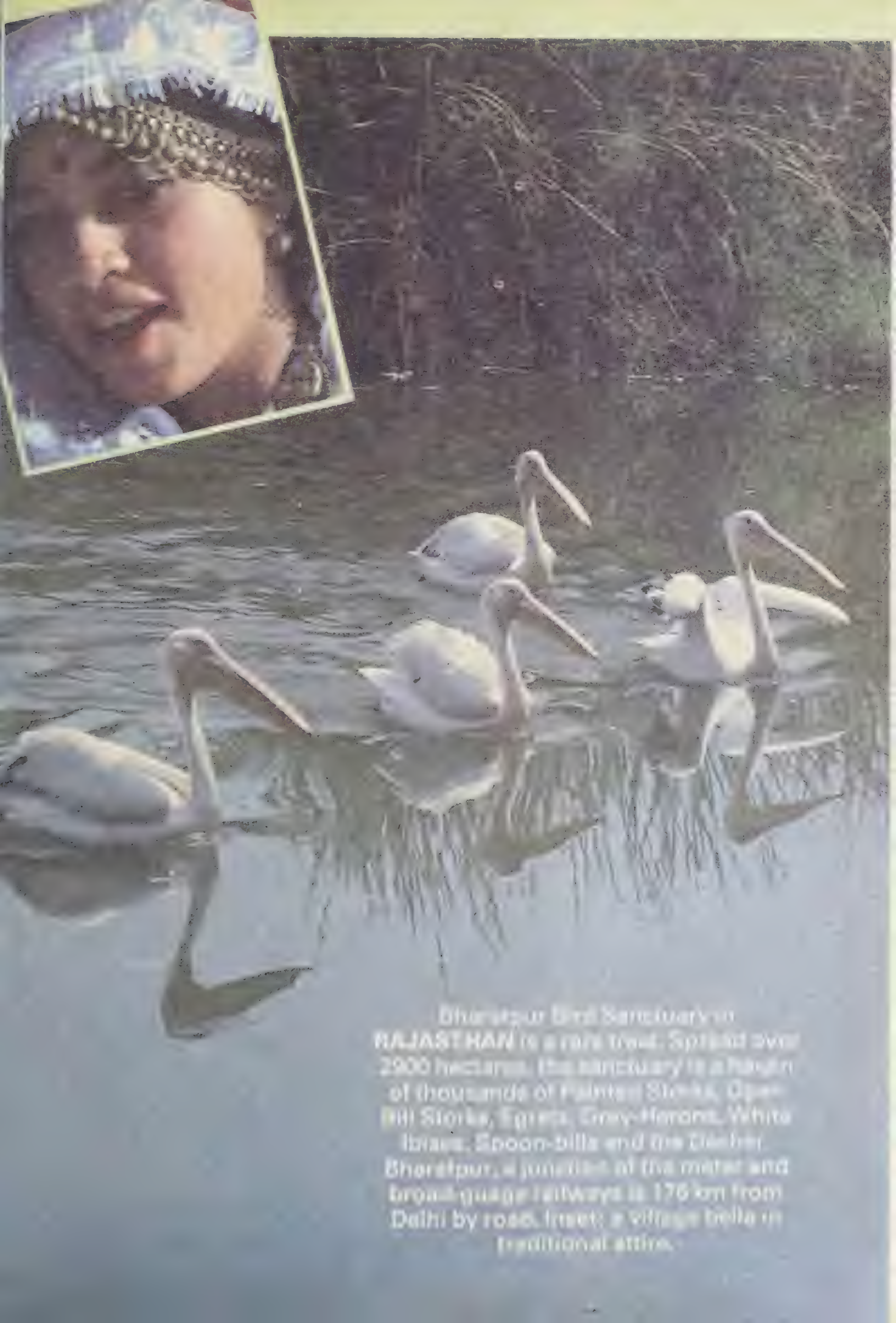




Another face of Goa is its rich heritage with a cavalcade of churches and temples. Se Cathedral in old Goa (above) and the Lamp Towers of Sri Mahalsa temple at Mardol are two pilgrim centres of great repute.

MAHARASHTRA blends the rich legacy of bygone days and the thrill of modernity. You may find Marathi girls in the traditional costume (inset) gazing at the wondrous starry sky in the Nehru Planetorium, Bombay.

The Gir forest of **GUJARAT** is world famous. It is the only remaining home of the Indian lion. In an area of 1,515 sq km there are about 200 lions. Nearest airport is Keshod – 86 km from Sarangir via Veraval. Sarangir is on the metre-guage line of the Western Railway. By road, it is 127 km from Junagadh via Keshod and 43 km from Veraval.



Bharatpur Bird Sanctuary in **RAJASTHAN** is a rare treat. Spread over 2900 hectares, the sanctuary is a haven of thousands of Painted Storks, Open-bill Storks, Egrets, Grey-Herons, White Ibises, Spoon-bills and the Darter. Bharatpur, a junction of the meter and broad-guage railways is 176 km from Delhi by road. Inset: a village belle in traditional attire.

CHANDIGARH lies on the hills of the Himalayas. The Rock Garden is its diadem. The city planned by the French architect Le Corbusier is 248 km north of Delhi.

The unspoilt loveliness of the Dal Lake in **KASHMIR** never tires you. The houseboats and the country-crafts paddled by village folk selling flowers and fruits are part and parcel of the lake life. Inset: a Drogpas beauty from Ladakh.

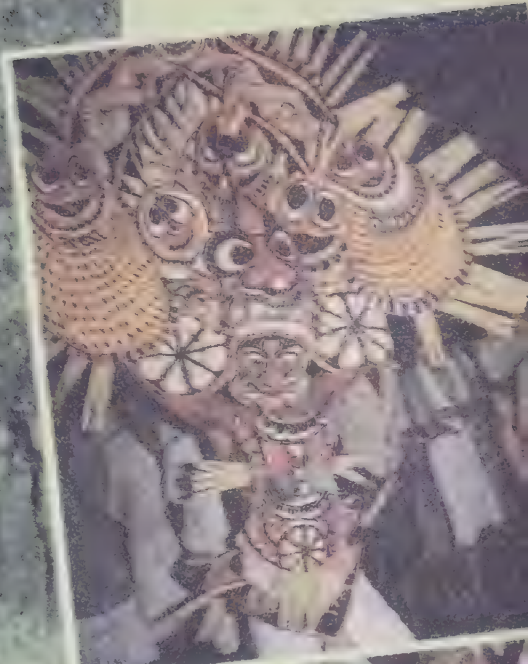
Agra means the city of Taj, the immortal monument of love. It is a hop from Delhi by air and the Taj Express takes you there by rail. Naki lake in Nainital is another face of **UTTAR PRADESH**. The nearest railhead is Kathgodam, 35 km away.

SIKKIM lies on the lap of the Himalayas bordering China. Flowers bloom under the canopy of snow-clad mountains. The Children's Park in Gangtok houses exotic dragons. The nearest airport is Bagdogra in West Bengal. From there a trip by road via Darjeeling is most enchanting.

ARUNACHAL PRADESH has innumerable spots of unspoilt beauty. Capital Itanagar proudly flaunts remnants of the Ita Fort and Tawang has preserved an ancient Budhist monastery for the discerning tourist.

TRIPURA offers you the chorus of the sowing season. The second smallest state in India, Tripura has many charms of exotic nature. The neighbouring **MIZORAM's** great asset is its accomplished women folk. They are well educated, well groomed and mod.

The Periyar Wildlife Sanctuary at Thekkady in Idukki District of **KERALA** is the home of hundreds of elephants living undisturbed in their natural habitat. Quite often they come down to the Periyar lake in herds. Thekkady is 144 km from Madurai 253 km from Trivandrum and 192 km from Cochin.



Theyyam (top) is one of Kerala's finest artistic expressions of a glorious past. The blooming Kanikonna (Cassia Fistula. Kerala's State flower) heralds the festival of Vishu ushering in the season of plenty.

It is tea time: Thousands of hectares of lush green tea gardens adorn the High Ranges of **KERALA** on the Sahyadris. Kerala shares about 10 per cent of the country's tea production.

TOURISM: LARGEST EARNER

Tourism is the largest single foreign exchange earner for the country — Rs.1800 crore in 1986. The figure is expected to be around Rs. 2000 crore in 1987. This is mostly accounted for by the expenditure on food and accommodation in this country.

Since the level of earning exceeds that of India's export of any single product or project, the importance of tourism in India's economy cannot be overemphasised. Everybody agrees that what India has so far achieved is only a modicum of its vast potential.

The target of foreign exchange earning from tourism of Rs. 4000 crore by 1990 is not overambitious when judged against global trends. The global earnings from tourism in 1986 was of the order of $ 115 billion contributed by 340 million tourists.

Tourism would become the world's major industry by the year 2000 according to international experts. Economic analysis of the tourist market indicates that the industry would grow at an annual rate of 3.5 per cent by 1995, making it the world's strongest industry at the outset of the next century.

In spite of India's many-splendoured image, we have been able to get only less than one per cent of the world tourist trade.

The international tourist arrivals during the year 1986 were 14,51,076 including 3,71,026 Pakistan and Bangladesh nationals. The tourist arrivals excluding the nationals of Pakistan and Bangladesh were 10,80,050 showing a growth of 29.1 per cent of 1985.

British tourists constituted the biggest chunk numbering 1,50,000 followed by Americans and West Germans.

Visitors from Italy, Spain and Switzerland increased by 60 per cent while those from the UK, France, Germany and the USA increased by 30 per cent. As far as Asian countries go, the figures are: Sri Lanka — 75,000; Japan — 36,402; Iran — 20,000 and Nepal — 13,957. Visitors from Africa numbered 50,607, an increase of around 25 per cent over the previous year.

There are many bottlenecks for the growth of tourism industry in the country. Misgivings by the visitors about the country, lack of adequate publicity, delay in airports and shortage of hotel rooms are a few of them. However the country is slowly gearing up to grab her legitimate share in the international tourism industry.

India's aim to earn Rs. 4000 crore out of tourism by 1990 is no easy task. This will involve large investment in the industry and infrastructure facilities. The centre has several

Indrail Passes Earn $ 9 m

Government has earned more than $9.1 m through the sale of Indrail passes to foreigners and Indians living abroad.

Official sources said the passes, issued to encourage tourism in the country, can be had only in US dollars. They are for air-conditioned, first class, AC chair car, two-tier and second class for periods from seven to 90 days. Children below 12 are required to pay half the fare.

Since its introduction on June 1, 1977 till March 1987, 1,24,296 travellers took advantage of the scheme.

A major hitch in the facility is that Indrail passes do not guarantee reserved accommodation although assistance is provided from the foreign tourist quota. Now certain tourist agencies are authorised to sell the passes in dollars at various railway stations.

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The validy of Indian Airlines domestic tickets issued against rupee fare will now be for six months from the date of issue. Until recently, the validity of these tickets was only for three months.

With a view to improving passenger convenience, an air traveller holding flight tickets for different sectors issued against rupee tariff can now use any of the coupons in any sequence preferred by the passenger within the validity period of six months from the date of original issue.

These new regulations came into force from Saturday, March 7, 1987.

plans including development of some of the tourist centres at 100 identified places with good potential for growth.

The major facility needed is hotels. As it is there is shortage of accommodation. It is officially estimated that against the requirement of 59,000 hotel rooms, the availability is only around 34,000. Development plans are under way to ensure the addition of 25,000 hotel rooms.

USA: World's Largest Earner

World's number-one earner in tourist industry now is the United States, followed by Italy, Spain, France and Britain.

Britain, the fifth in the list has targeted to attract a record 14.6 million tourists in 1987—6 per cent more than 1986. There visitors are expected to spend £ 7500 million – an increase of 12 per cent over 1986.

According to the latest annual report of the British Tourist Authority (BTA) Britain was able to attract 13.8 million tourists spending £6705 million in 1986 despite the deterrent effects of the Chernobyl nuclear disaster and the threat from international terrorism.

BTA expects that the tourism industry will be generating £23000 million per year for Britain by the early 1990s. During 1987 it will have injected 50,000 new jobs into the economy, providing full-time employment for 1.4 million people.

Of the 13.8 million visitors Britain had in 1986, some 60 percent were from West Europe, 21 percent from North America and 19 percent from other areas of the world.

BTA is opening a new office in India during 1988 as India and the far East were seen as the future growth markets for inward tourism.

According to a BTA survey, the main attractions of Britain are its heritage, pageantry, shopping, countryside, friendly people, interesting society and the chance to speak and learn English (BIS).

It is to be admitted that all the state governments are not as keen as they should be to promote tourism. Some of the states have not accepted the central directive to grant tourism the status of an industry. This facility would have made the hotel industry eligible for certain additional incentives and concessions.

The inadequate development of modern means of transport has been another problem area. More modern cars and improved transport systems, may, however, be of limited use until the Indian roads are upgraded. Even the highways are not often maintained properly and sub-standard repair-work goes on reflecting the combined negligence of contractors and engineers. So the government's decision to permit multinational car rental services like 'Avis and Hertz' to operate in India is to be viewed with caution and apprehension.

The government plans to promote adventure tourism in India in a big way with emphasis on sports like mountaineering, river rafting and canoeing. Around 100 sites around the country have been identified for adventure tourism, in the first phase 30 sites would be developed. Emphasis would also be given to economy class domestic tourists with government building yatri niwass and low budget hotels: Places of special interest like fairs and religious places which were of significance to Buddhist tourist would also receive attention.

A marketing campaign has been launched in the Western countries which projects India through various media like television to inform the tourists about India. New areas for potential tourists like Spain and Latin America are also being taken up and some of the advertisements, documentaries and brochures have been taken out in Spanish.

There is lack of good souvenir industry in India. The country's handicrafts and handlooms could provide a good base for the industry which is now virtually non-existent.

According to the latest annual report of the Ministry of Tourism, the highlights of tourist promotional activities overseas were:

1. In order to cash in on the positive publicity generated by the festival of India, a massive advertising campaign entitled "Have the Festival of Your Life in India, It's wonderful" was launched in the print media in the USA.

2. Promotional efforts were diverted to-

Hotel Management Institutes in India

Institute of Hotel Management
Catering & Nutrition
Library Avenue, Pusa
New Delhi-110 012.
Institute of Hotel Management,
Catering Technology & Applied Nutrition
Veer Sawarkar Marg, Dadar
Bombay-400 028
Institute of Hotel Management
Catering Technology & Applied Nutrition
C.I.T. Campus, P.O. Tharamani
Madras-600 113.
Institute of Hotel Management,
Catering Technology & Applied Nutrition
P-16, Taratola Road
Calcutta-700 088

Institute of Hotel Management
Catering Technology & Applied Nutrition
Nehru Park Boulevard Road
Srinagar-190 001
Institute of Hotel Management,
Catering Technology & Applied Nutrition
18-B, Ashoka Marg
Lucknow-226 001
Institute of Hotel Management
Catering Technology & Applied Nutrition
Veer Surendra Sai Nagar
Sainik School Road
Bhubaneswar-751 004

Institute of Hotel Management
Catering Technology & Applied Nutrition
P.O. Alto Betim, Bardez
Goa-403 112
Institute of Hotel Management
Catering Technology & Applied Nutrition
A.T.I. Campus, Vidyanagar
Hyderabad-500 007

Institute of Hotel Management
Catering Technology & Applied Nutrition
S.J. Polytechnic Campus
Bangalore-560 001
Institute of Hotel Management
Catering Technology & Applied Nutrition
II, I.T.I. Campus
Bhopal-462 023
Institute of Hotel Management
Catering Technology & Applied Nutrition
Govt. Polytechnic Compound, Ambawadi
Ahmedabad-380 015
Foodcraft Institute
Kalamassery
Alwaye-683 104
Foodcraft Institute
Engineering College Hostel Campus .
Shivaji Nagar
Pune-411 005
Foodcraft Institute
Sector-26
Chandigarh-160 026
Foodcraft Institute
M.I. Road
Jaipur-302 001
Foodcraft Institute
Thuvakkudi
Tiruchirapalli-620 015
Foodcraft Institute
31-Industrial Estate
Patna-800 015
Foodcraft Institute
Old Gargi College Building
Behind Lady Sriram College
Lajpat Nagar-IV
New Delhi-110 024
Foodcraft Institute
(University Polytechnic Campus)
Aligarh Muslim University
Aligarh-202 001
Foodcraft Institute
Kufri
Shimla-171 019
Foodcraft Institute
Beltola Basistha Road
Ajanta Path, P.O. Beltola
Guwahati-781 028
National Council for Hotel Management & Catering Technology
Library Avenue, Pusa Complex
New Delhi-110 012
Foodcraft Institute
Vishakha Valley School Campus
Visakhapatnam-530 040
Foodcrafct Institute
Maratha Boarding Building
Jayandergani
Gwalior-474 009

wards generating offseason traffic from the European countries by launching a programme entitled "Affordable India" in collaboration with Air India. Under this scheme, special seasonal discounts on deluxe hotels and transport were made available during the year 1986.

3. In order to capture stopover traffic from Australasia "India on the House" scheme was implemented in collaboration with Air-India.

4. From the East Asia region, efforts were made to promote Buddhist traffic and publicise India as an attractive destination for honey-mooners.

5. A quiz contest on India was also launched with a very good response (over four lakh entries). A special quiz on India was launched in the German language in Germany.

6. India was promoted as a family holiday destination in the West Asian Region.

7. Due to the proximity of India to the UK, India was promoted as a holiday destination both in the print media as well as on TV.

Since 1985-86 the promotion of *domestic tourism* is being accorded high priority. A campaign was launched in the print media in the year 1985-86 with the byeline "Discover India-Discover Yourself-in India you will seee the World" The second phase of this campaign was hard-sell – It promotes lesser known but "Affordable Destinations" of tourist interest like Mandu, Periyar, Andamans and Valley of Flowers.

During the very year a parallel campaign to arouse interest amongst the youth with the byeline "Discover India," a quiz contest was also launched in the print media. The underlying theme is to motivate people of different cultures and languages to travel and integrate.

Today, domestic tourism is on the increase and people are evincing keen interest in their own cultural heritage and are travelling in large numbers to holiday and cultural destinations. Thus the publicity campaign is aimed at various segments of the domestic tourist market.

Now, a heartening news: India bagged the prestigious international *PATA Gold Award* for 1987 for mounting the best campaign for publicising "lesser known tourist destinations." The gold award of the Pacific Area Travel Association (PATA) was received by Mr. S.K. Misra, secretary, ministry of tourism, at Osaka, Japan.

THE SEVENTH PLAN

The Seventh Five-Year Plan (1985-90) envisages an aggregate outlay of Rs. 348,148 crore with a public sector outlay of Rs. 180,000 crore. The draft plan has become a national document for the planning process in the country till 1990.

The plan envisages a total investment of Rs. 3,22,366 crore. Ninetyfour per cent of the total investment would be financed from domestic fund, with a "tremendous" effort at resource mobilization.

Of the *public sector* outlay, the investment component would be Rs. 1,54,218 crore. This investment would be financed to the extent of Rs. 54,422 crore (32 per cent) by own savings, Rs. 84,062 crore (56 per cent) by draft on private savings and about Rs. 18,000 crore by foreign borrowings.

The outlay for the central sector will be Rs. 95,534 crore, states Rs. 80,698 crore and Union territories Rs. 3,768 crore.

The Plan places the deficit financing at Rs. 14,000 crore and net borrowings at Rs. 30,562 crore.

The target of additional resources mobilization by the Centre is placed at Rs. 22,212 crore. The success of the Plan is crucially dependent on the achievement of the targets of additional resources mobilization and of public savings.

As postulated in the approach paper, full employment and productivity, along with infrastructure and human resource development have been taken as the guiding principles.

Continued self-sufficiency in food and expansion of national system of food security have been given high priority. Special efforts would be made to increase the production of oilseeds, pulses, vegetables and horticulture. Productivity in agriculture would be increased through more effective utilization of irrigation and other potentials. In industry emphasis is being laid on modernization and high technology.

In the field of employment, a major objective of the Plan is to ensure that growth of employment opportunities is faster than the growth of labour force.

The employment potential is expected to increase by 40 million standard person years against an addition to the labour force of 39 million during the plan.

With a view to achieving a faster rate of growth in agriculture and industry, emphasis is laid on investment in infrastructure.

This is done to see that shortages in power, transport and coal would not arise for the scale of activities envisaged in the Plan, which provided a significant increase in the share of energy to the tune of 32 per cent in the public sector outlays—the largest.

One more major thrust in the Seventh Plan is human resources development.

Public sector outlays for social services show a considerable increase compared to the Sixth Plan. Besides expansion of the existing programmes in education, health, science and technology, new initiatives and innovative measures are contemplated in this area.

The balance of payment projections over the five years (1985-90) estimate exports at Rs. 60,653 crore with imports at Rs. 95,437 crore, giving an adverse trade balance of some Rs. 34,700 crore.

Plan Estimates

The following are estimates of financial resources for the public sector plan for 1985-90.

Item	Amount (Rs. crore at 1984-85 prices)
Balance from current revenues at 1984-85 rates of taxes	(—)5,249
Contribution of public enterprises	35,485
Market borrowings (net)	30,562
Small savings	17,916
State provident funds	7,327
Term loans from financial institutions	4,639
Miscellaneous capital receipt (net)	12,618
Additional resource mobilization	44,702
Net capital inflow from abroad	18,000
Deficit financing	14,000
Aggregate resources	1,80,000

Public Sector

The following are the public sector outlays in the Seventh Plan.

(Rs. crore)

Sl. No.	Heads of development	Total
1.	Agriculture	10,573.62
2.	Rural development	9,074.22
3.	Special area programmes	3,144.69
4.	Irrigation and flood control	16,978.65
5.	Energy	54,821.21 (include)
	Power	34,273.46
	New and renewable sources of energy	519.55
	Petroleum	12,627.67
	Coal	7,400.58
6.	Industry and minerals	22,460.83 (include)
	Village and small scale industry	2,752.74
	Large and medium industry	19,708.09
7.	Transport	22,971.02 (include)
	Railways	12,334.55
	Roads	5,200.04
	Road transport	1,990.10
	Other transport	3,446.33
8.	Communication, information and broadcasting	6,472.46 (include)
	Telecommunications	4,538.74
9.	Science and technology	2,466.00
10.	Social services	29,350.46 (include)
	Education, culture and sports	6,382.65
	Health including medical	3,392.89
	Family welfare	3,256.26
	Housing and urban development	4,259.50
	Water supply and sanitation	6,522.47
11.	Labour and labour welfare	333.72
	Total	180,000.00

Economic planning in India is under the aegis of the *Planning Commission*. In March, 1950, the Government of India set up a Planning Commission to prepare a plan for 'the most effective and balanced utilization of the country's resources'. The Planning Commission has since been functioning as the kingpin of national development.

Planning Commission (as on Dec. 1, 1987): Prime Minister Rajiv Gandhi (Chairman), Dr. Manmohan Singh (Dy. Chairman), Dr. M. G. K. Menon, Abid Hussain, Hiten Bhaiya, Y. K. Alag, P. N. Srivasthava and Dr. Raja J. Chelliah.

First Plan 1951-56. The first Plan with a total outlay of Rs. 2378 crore was a rather haphazard venture, as the Planning Commission had no reliable statistics to work upon. Besides, the plan had to be co-related to the prevailing activities of various government departments. The result was patchwork of isolated projects. All the same, the plan had a national character and was based on a rational hypothesis. It laid emphasis on agriculture, irrigation, power and transport so as to provide an infrastructure for rapid industrial expansion in future. The plan turned out to be more than a success, mainly because it was supported by two good harvests in the last two years.

Second Plan 1956-61. The Second Plan (1956-61) was a big leap forward. It laid special stress on heavy industries. The industrial policy resolution was amended so as to shift the primary responsibility for development on the public sector. Private sector was left to handle consumer industries. But the great quantity of imports that the Plan envisaged in both public and private sectors, practically denuded India's accumulated sterling balances (as much as Rs. 500 crores) in two years and compelled the country to seek extensive foreign aid. Agriculture and small-scale industries remained sluggish, without adding any momentum to development.

Third Plan 1961-66. The Third Plan rode on a wave of high expectations following overall growth of the Indian economy in the first two plan periods. The Third Plan aimed at establishing a self-sustaining economy. Internal resources having been strained to the utmost, the Plan had to rely on heavy foreign aid.

During the Third Plan, national income (revised series) at 1960-61 prices rose by 20 per cent in the first four years but registered a decline of 5.6 per cent in the last year. Per capita real income in 1965-66 was about the same as it was in 1960-61.

A growing trade deficit and mounting debt obligations led to more and more borrowings from the International Monetary Fund. The rupee was devalued in June, 1966 to little purpose, as it soon turned out. The Third Plan had become stuck.

Interim Planning. The Third Plan having gone awry, planning itself had become discredited in the eyes of many and demands were made from different quarters to declare a Plan holiday. But neither the Government nor the Planning Commission admitted failure. They refused to fall in with the demand for a Plan holiday and proceeded to draw up the Fourth Plan as from 1966-67. But the economy had so far degenerated that the Fourth Plan could not be started in time, that is to say, in 1966. Instead, as a stop-gap arrangement planning was made annual. The Annual Plans continued from 1966 to 1969—1966-67, 1967-68 and 1968-69.

Fourth Plan 1969-74. The Fourth Plan (1969–74) officially commenced on April 1, 1969 with the publication of the Draft Plan. *Growth with stability* was the main objective of the Plan. Agriculture was expected to lead the growth with a rate of 5 per cent per annum. Such a growth in agriculture would set up a chain reaction in the economy. The target for the growth rate of industry was set at about nine per cent per annum. Altogether the national income was expected to increase at the rate of 5.5 per cent per annum. Allowing for the increase of population at the rate of about 2.5 per cent, the per capita income was expected to increase at the rate of 3 per cent per annum or about 16 per cent in the Fourth Plan period.

Fifth Plan 1974-79. The Fifth Plan draft as originally drawn up was part of a long term *Perspective Plan* covering a period of 10 years from 1974-75 to 1985-86. The perspective plan attempted to co-ordinate various sectors of the economy in terms of the new slogan *Garibi Hatao* (Remove Poverty). The long term rate of growth which the economy was expected to achieve on a self-sustaining basis was put up at 6.2 per cent per annum.

By the time the Fifth Plan was approved by the National Development Council (Sept. 1976) its premises had become obsolete and the total outlay had to be increased from Rs. 37,463 crore to 39,303 crore.

This belated attempt had an inglorious end in another 6 months, when the Janata party came into power. They scrapped it unceremoniously.

The Janata government reconstituted the Planning Commission and announced a new strategy in planning. The strategy involved a change in objective and pattern. The objective was laid down as *Growth for Social Justice* instead of *Growth with Social Justice*— a distinction without a difference. The new pattern was the *Rolling Plan* which merely meant that every year the performance of the Plan will be assessed and a new Plan based on such assessment will be made for the next year—a continuous planning, in fact. The rolling plan started with an annual plan for 1978–79 and as a continuation of the terminated V plan.

Sixth Plan (1980-81—1984-85) had been formulated after taking into account the achievements and short-comings of the past three decades of planning. The Sixth Plan actual expenditure stood at Rs. 1,09,291.7 crore (current prices) as against the envisaged total public sector outlay of Rs. 97,500 crore (1979-80 prices) accounting for a 12 per cent increase in nominal terms. The average annual growth rate for the Sixth Plan works out to 5.2 per cent, which is equal to the targetted growth rate for the plan period.

POWER CRISIS GRIPS NATION

Millions of people sweated it out last summer due to a power crisis in several states triggered by repeated failure of rains and under utilization of power generation facilities.

Eventhough the power generating capacity in the country has increased from 1700 MW at the beginning of the first plan to 49,300 MW by the end of the second year of the seventh plan, the demand has far outstripped the supply.

A national survey conducted by PTI in June 1987 found that besides domestic consumers, industries were also hit by the power crisis. Denial of adequate power has resulted in heavy loses and has affected production in some core-sector industries as well as small-scale concerns.

Inadequate power supply has been attributed to several factors, including delays in the commissioning of projects, extending in some cases to several years for reasons varying from poor project management to lack of funds.

The Seventh Plan envisages capacity induction of around 23,000 MW. However, by the end of 1989-90, a shortfall of 8,500 MW peaking capacity and 5.4 per cent energy shortfall is feared inspite of the 19 per cent plan outlay which is to be utilized to augment power generation in the country.

The amount spent since 1950 in the power sector amounts to Rs. 34,000 crores and now in the seventh plan alone the same amount has been allocated.

Some states using *coal* for power generation, eg. Karnataka, have also found it difficult to meet the demand since the coal available is not enough nor is it of good quality.

However, in some states like Maharashtra supply of power is more than adequate prompting them to supply its surplus to neighbouring states.

Out of the total installed power capacity in the country as on March 31, 1985, *nuclear power* constituted 2.6 per cent. India is one of the nine countries in the world after the U.S., the USSR, the U.K., France and Canada which can design, construct, commission and operate a nuclear station all on its own. Almost 88 per cent of the cost of an Indian nuclear reactor now represents local cost.

Against this background, the conversion of the Nuclear Power Board to the *Nuclear Power Corporation* in September, 1987 with an ambitious target of producing 10,000 MWe by 2000 A.D. is a landmark in the history of power planning in the country.

At present there are three *nuclear power stations* in operation in India—at Tarapur, Rajasthan and Madras. They have a total capacity of 1230 MWe. When the Tarapur Atomic Power Station was commissioned in 1969, it was the first nuclear power station in Asia, outside the Soviet Union. During the last 18 years considerable experience has been gathered not only in operating nuclear reactors in a reliable manner but also in developing completely indigenous design capability.

Petroleum Bill Soaring

India's import bill for crude oil and petroleum products is expected to be Rs. 5,400 crores during 1987-88.

This is about Rs. 1,800 crores more than the current financial year, but almost the same level as the import bill of three years ago. The total import bill for 1984-85 was Rs. 5345 crores.

According to the Petroleum Conservation Research Association, the net import of petroleum into India at the end of the Seventh Plan would be around Rs. 6400 crores assuming a growth rate of 7 per cent.)

The country plans to import 17 million tonnes of crude and three million tonnes of petroleum products in 1987-88. This is three million tonnes more than the total import of crude and products expected in the current financial year.

The higher import of crude and products had been necessitated by the growing demand which is expected to increase by seven per cent.

The total consumption of petroleum products in 1987-88 is expected to be 47 million tonnes, three million tonnes more than the current year.

Among the petroleum products, high speed diesel oil (HSD) and kerosene accounted for more than 50 per cent of the total consumption of petroleum products in the country.

Despite the steep hike in the price of petroleum products last year, mainly as a revenue yielding measure, the overall growth in consumption is estimated at seven per cent.

The average price of imported crude, particularly upto December 1986, was only $ 14.5 per barrel consequent on the fall in the international prices. However, the average price of imported crude during 1987-88 is expected to remain at $ 18 per barrel.

India imported more than 50 per cent of its requirements of crude last year at the then prevailing market prices. The country saved nearly Rs. 1,500 crores in foreign exchange on import of crude and petroleum products in the current financial year by taking advantage of the price fall.

Meanwhile, the indigenous production of crude in 1987-88 is expected to be only a little over 30 million tonnes, almost the same as 1986-87 when production was 30.34 million tonnes. In 1985-86 it was 30.168 million. According to official sources no significant increase in domestic, oil production is envisaged in the near future, despite the repeated claims of Oil and Natural Gas Commission about new oil and gas finds.

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Natural gas would emerge as "a significant" source of commercial energy in India in the immediate future as domestic oil production has reached a plateau and world oil prices, are set to rise by the end of this decade, according to the new chairman and managing director of the Gas Authority of India Limited (GAIL), Mr. Vineet Nayyar.

Mr. Nayyar said India could produce 50 million cubic metres of gas per day in the eighth plan. Currently, 15 million cubic metres of gas is flared by the Bombay High and another 15 million cubic metres would be available once the H-B-J pipeline construction was over, he said.

Besides, Assam and Tripura hold promise of gas production to an extent of six to eight million cubic metres per day.

New nuclear power units are fast coming up. Two units of 235 MWe at Narora (U.P.) are expected to be commissioned in 1988 and 1989 and two more units of 235 MWe at Kakrapar (Gujarat) by the end of 1990 and 1991. Work has been initiated at a new site, Kaiga in Karnataka and at Rawatbhata in Rajasthan, as an expansion of the existing Rajasthan Atomic Power Station.

Each of these projects consists of two units of 235 MWe and is expected to be commissioned in 1994. Some more projects of 235

MWe are visualized in the 15-year programme. In parallel with this 235 MWe programme, design work on 500 MWe units is in an advanced stage and as per current plans, the first two units of 500 MWe are expected to be commissioned in 1995. This will be followed by a series of additional 500 MWe units to attain a capacity of 10,000 MWe by the turn of the century.

This programme based on the natural uranium fuelled Pressurized Heavy Water Reactor (PHWR) units (with the sole exception of Tarapur which has boiling water reactor (BWR) units) constitutes the first phase of the nuclear power programme in India.

The second phase of the programme will utilize the plutonium recovered from the spent fuel along with the unused U-238 from the PHWRs to fuel fast breeder reactors to generate electricity and more plutonium. As a step towards realizing the second phase, a 15 MWe Fast Breeder Test Reactor was commissioned in October 1985.

The third phase of the nuclear power programme will employ the U-233-Thorium cycle to utilize the country's abundant resources of thorium to meet the country's energy requirements in the latter half of the 21st century.

The target for power generation during 1985-86 was fixed at 170 billion units. Of this, 110 billion units were to be generated by thermal stations, four billion units by nuclear power plants and 56 billion units by hydro stations. The actual generation during 1985-86 was 170.037 billion units with 114.119 billion units being generated by thermal stations, 4.985 billion units by nuclear power plants and 50.933 billion units by hydro stations.

The total length of transmission lines of 66 kV and above stood at 1.62 lakh km in March 1986. The highest transmission voltage in the country at present is 400 kV and about 7800 ckt km of 400 kV lines have been constructed upto March 1986.

Rural Electrification: Out of a total of 5.76 lakh villages, 3.9 lakh villages have been electrified by the end of 1986.

Coal: In the year ending March 31, 1987 the country achieved a record production of 165 million tonnes. Coal reserves of India as per assessment made by the Geological Survey of India upto 1986 are 1,59,299.16 million tonnes, the largest deposit being in Bihar (56,612.30 million tonnes), followed by Orissa (34,463.01 million tonnes), West Bengal (28,154.16 million tonnes) and Madhya Pradesh (23,856.44 million tonnes).

Lignite: Lignite deposits occur in India mostly at Neyveli in the South Arcot district of Tamil Nadu (about 3300 million tonnes or roughly 90% of the total lignite reserves in the country).

The lignite reserves at Neyveli are exploited by the Neyveli Lignite Corporation Ltd. (NLC). The NLC maintained its excellent production peformance in 1985-86 by producing 7.287 million tonnes. It produced 3938 million units of power too.

FOOD & AGRICULTURE

India's agricultural growth from the days of the begging bowl to the days of philanthropy has been phenomenal. The Green Revolution brought about by scientific methods of cultivation helped her not only to brave the ravages of flood and drought but also to offer food aid to the less fortunate masses in Asia and Africa.

The year 1985-86 turned out to be a bright one for Indian agriculture when the overall production reached 150.5 million tonnes—5 million tonnes more than the previous year's production. The two major cereals rice and wheat, as also fibre crops established new records in production.

The record foodgrain production of 152.4 million tonnes during 1983-84 was a signal achievement for India, receiving world-wide acclaim. What is particularly notable is that while the *First Green Revolution* of 1967-68 arose from introduction of new high yielding varieties of Mexican wheat and dwarf rice varieties evolved by the International Rice Research Institute, the spectacular increase in production during 1983-84 was mainly owing to organized input management. the provisional figure for 1984-85 is 146.2 m tonnes.

The year 1983-84 could thus be termed as the *Second Green Revolution* showing a massive increase in production through expansion in supplies of inputs and services to the farmers, extension and better management. As compared to the previous years, the increase in 1983-84 in the distribution of seed, fertiliser and pesticides showed a marked increase. The expansion in the provision of institutional credit for agriculture was also encouraging.

The highly notable and encouraging feature of this second Green Revolution is that whereas the first Green Revolution of 1967-68 was confied mainly to a few progressive areas of Punjab, Haryana and West U.P., the second Green Revolution of 1983-84 has witnessed tremendous progress in Eastern and Central States including West Bengal, Bihar, Orissa, Madhya Pradesh and U.P. where the growth rates had been relatively slow.

The overall growth in agriultural production had a very salutary effect on the economy. Supplies of rice, wheat and other cereals have been in abundance and the prices have been ruling mostly at a lower level than last year. Procurement of rice and wheat touched a new peak and the stocks of foodgrains also reached a record level.

Operation Flood III

World Bank has approved a 300-million dollar loan for Operation Flood phase-III.

The loan was an outcome of the joint World Bank—EEC appraisal mission that had visited India in March and April, 1987.

The loan is preceded by an increase in the rate of interest charged to cooperatives by the Indian Dairy Corporation, as was suggested by the World Bank team. It has been raised from 8.5 per cent to 10 per cent.

The bank in a letter has observed that Operation Flood has made excellent progress and that the cooperative model has been fundamentally successful in benefitting both consumers and producers.

Operation Flood phase-III will involve a total investment of Rs. 681.29 crore and will be implemented during the Seventh Plan.

Enrolment of more members in the dairy cooperatives, setting up more dairy co-operatives, increasing milk processing and marketing facilities and consolidation of existing facilities are the basic objectives of this programme.

Operation flood was launched in 1970 by the Indian Government with massive assistance from the World Food Programe in the shape of skimmed milk powder and butter oil. In its first phase, the programme received 1,26,000 tonnes of skimmed milk powder and 42,000 tonnes of butter oil.

Operation Flood phase-II was started in October 1978 and the total investment was Rs. 485.58 crore.

Area, Production and Yield of Principal Crops

(Year relates to Crop Years (July-June)

Crops		1950-51	1980-81	1985-86
Rice	A	308.10	401.52	409.12
	P	205.76	536.31	641.53
	Y	668.00	1336.00	1568.00
Wheat	A	97.46	222.79	230.74
	P	64.62	363.13	468.85
	Y	663.00	1630.00	2032.00
Jowar	A	155.71	158.09	157.89
	P	54.95	104.31	101.23
	Y	353.00	660.00	641.00
Bajra	A	90.23	116.57	106.89
	P	25.95	53.43	36.83
	Y	288.00	458.00	345.00
Maize	A	31.59	60.05	58.79
	P	17.29	69.57	68.90
	Y	547.00	1159.00	1172.00
Cereals (Total)	A	782.30	1042.10	1032.44
	P	424.14	1189.62	1375.05
	Y	542.00	1142.00	1332.00
Pulses (Total)	A	190.91	224.57	238.18
	P	84.11	106.27	129.64
	Y	441.00	473.00	544.00
Gram	A	75.70	65.84	76.54
	P	36.51	43.28	56.83
	Y	482.00	657.00	743.00
Foodgrains (Total)	A	973.21	1266.67	1270.62
	P	508.25	1295.89	1504.69
	Y	522.00	1023.00	1184.00
Groundnut	A	44.94	68.01	73.11
	P	34.81	50.05	55.47
	Y	775.00	736.00	759.00
Rapeseed and Mustard	A	20.71	41.13	38.03
	P	7.62	23.04	26.39
	Y	368.00	560.00	694.00

Oilseeds	A	107.27[1]	176.03	188.71
[Total (a)]	P	51.58[1]	93.72	111.54
	Y	481.00[1]	532.00	591.00
Sugarcane	A	17.07	26.67	28.62
	P	570.51	1542.48	1716.81
	Y	33422.00	57844.00	59986.00
Cotton	A	58.82	78.23	75.81
(Lint[2])	P	30.44	70.10	86.12
	Y	88.00	152.00	193.00
Jute[3]	A	5.71	9.41	11.48
	P	33.09	65.08	109.52
	Y	1043.00	1245.00	1717.00
Mesta[3]	A	Not	3.59	3.48
	P	Available	16.52	17.76
	Y		828.00	919.00

1. Five Major Oilseeds. 2. Lakh bales of 170 kg each. 3. Lakh bales of 180 kg each.
A-Area in lakh heactares; P-Production in lakh tonnes; Y-Yield in kg per hectare.

A major weakness of Indian agriculture is that more than 2/3rd of the cultivated area is still dependent on rains. This dependence has, however, come down to a large extent in recent years following sustained efforts by both the farmers and the government to adopt appropriate strategies. Despite fluctuations, the average food production over the entire period of the Sixth Plan worked out to 138.20 million tonnes. This exceeded by more than 6 million tonnes the peak production of 131.90 million tonnes achieved during the Fifth Plan period.

Rainfall during the south-west monsoon of 1986 was worse than in the previous years. Despite failure of monsoon during recent years, it was possible to maintain higher levels of production signifying the growing resilience in agricultural sector. The strategy for increasing irrigation potential by two million ha. per year along with greater use of high yielding variety of seeds and improving fertiliser efficiency is yielding results. According to official indication, foodgrains production in 1986-87 is expected to be around 151 million tonnes.

The target for foodgrains production by the terminal year of the Seventh Plan. i.e. 1989-90 has been fixed between 178 and 183 million tonnes. Despite the vagaries of weather, the government is optimistic of achieving the goal. The major thrust programme will be better water management. Simultaneously, efforts for the spread of improved technology including timely use of quality inputs will be pursued.

India: Largest Producer of Sugar

The sugar season 1986-87 ended with an all time high production of 85 lakh tonnes, against a previous record of 84.36 lakh tonnes reached in 1981-82. With this level of production the country has emerged as the largest producer of sugar in the world surpassing Brazil which produces around 80 lakh tonnes of sugar per annum.

The sugar industry reported an extra ordinarily good performance in 1986-87, thanks to the revised sugar policy which provides incentives to both the sugarcane farmers and sugar manufacturers. The policy enabled the industry to bring down sugarcane payment arrears to a minimum of Rs. 16 crores. Besides, the industry has been able to push up the production by as much as 15 lakh tonnes in a single year from 70.03 lakh tonnes in 1985-86 to 85 lakh tonnes in 1986-87.

Despite the sizable increase in the production the country has to import sugar since the consumption has been increasing at a faster rate. The Offtake of sugar from the factories totalled 79.25 lakh tonnes for internal consumption and 22,000 tonnes for exports in 1986-87, against 65.94 lakh tonnes for internal consumption and 33,000 tonnes for exports in 1985-86. In addition, the movement of imported sugar from the ports computes to 9.97 lakh tonnes out of which about 2.40 lakh tonnes have remained in stock with FCI at different consuming centres upto the end of September. The season end figure of movement of imported sugar totalled 16.79 lakh tonnes last season.

The outlook for the nex season is also quite good. Although the sugarcane production may not exceed 175 million tonnes the sugar production is expected to be about 80 lakh tonnes.

The Food Production Gap

Land productivity in world's 11 most populous countries, 1985.

Country	*Population (million)*	*GNP (US $)*	*Grain Yield (tonnes per hectare)*
Japan	*122*	*10,630*	*5.8*
United States	*241*	*15,390*	*4.8*
China	*1,050*	*310*	*3.9*
Indonesia	*168*	*540*	*3.7*
Bangladesh	*104*	*130*	*2.2*
Mexico	*82*	*2,040*	*2.1*
Brazil	*143*	*1,720*	*1.8*
India	*785*	*260*	*1.6*
Pakistan	*102*	*380*	*1.6*
Soviet Union	*280*	*n.a.*	*1.6*
Nigeria	*105*	*730*	*0.8*

Average grain yields in the world's most populous countries reflect differences in climate and soil fertility but also show areas where performance gaps need to be closed. Although the highest yields occur in affluent industrial nations, China and Indonesia demonstrate that low income need not be associated with low yields.

About a third of the world's people live in four countries where productivity exceeds 3.5 tonnes per hectare against a world average of 2.6 tonnes. Another third live in countries where productivity is less than 2 tonnes.

Fertiliser consumption has significantly gone up from a level of 1.1 million tonnes in 1966-67 to 8.7 million tonnes in 1985-86. During 1986-87, the consumption is expected to be of the order of 9.2 million tonnes. By the year 1989-90, a consumption targetof 13.5-14.0 million tonnes is envisaged.

The retail prices of both imported and indigenous fertilisers remained statutorily controlled under the provisions of the Fertiliser Control Order issued under the Essential Commodities Act, 1955. The prices, however, were revised upward to reduce the burden of subsidy.

In order to ensure availability of good quality seeds, the government set up two national level organizations viz. National Seeds Corporation and State Farms Corporation of India. State Seed Corporations were also set up in nine states. Distribution of certified quality seeds recorded a phenomenal increase from 14 lakh quintals in 1979-80 to 55.83 lakh quintals during 1986-87. The target for 1987-88 has been fixed at 73.00 lakh quintals.

In order to ensure remunerative prices to growers and reasonable prices to consumers, the government announces, each season, procurement/support prices for major agricultural commodities and organizes purchase operation through public agencies. There prices are decided on the basis of the recommendations made by the Commission for Agricultural Costs and Prices (CACP) and in consultation with the state governments, the concerned central Ministries and the Planning Commission.

The development of horticulture also is given greater attention. During 1984-85, the production of *fruits* was estimated at 235 lakh tonnes. The target in the Seventh Plan is fixed at 280 lakh tonnes. During 1984-85 the production of *vegetables* in the country was estimated at 340 lakh tonnes. For the terminal year of the Seventh Plan i.e. 1989-90 the target is fixed at 400 lakh tonnes. The production of *potatoes* has been estimated at 125.7 lakh tonnes during 1984-85. The target of 160 lakh tonnes is set for the Seventh Plan.

Coconut production was estimated at 6620 million nuts during 1985-86. It is targetted to produce 8000 million nuts at the end of the Seventh Plan. In India, Kerala and Andaman &

New 20-Point Programme

The government on August 20, 1986 announced in the two houses of Parliament a revised 20-point programme with a major thrust on poverty alleviation programmes so that they reach all the poor in every village.

"The war on poverty is our first priority. In the past five years, more than ten crores have been raised above the poverty line. Our goal is to remove poverty and create fuller employment" the programme document said.

"The 20-point programme is the cutting edge of the plan for the poor", it pointed out, and said the programme had been restructured in the light of "our achievements and experience and the objectives in the Seventh Plan". The restructured programme renews the commitment to eradicating poverty, raising productivity, reducing income inequalities, removing social and economic disparities and improving the quality of life.

The revised programme also lays emphasis on the creation of a responsive administration envisaging simplification of procedures and promptly attending to public grievances, providing new opportunities to youth, involving them in massive national development projects and special programme for rural labour.

The programme proposes to involve youth in the cleaning Ganga and conservation and enrichment of environment projects. Services of educated youth will also be utilised for imparting mass education.

Though the main thrust of the new programme is on alleviation of poverty, stress is laid on two-child norm and providing equality for women.

The other thrust area under the programme is on the rigorous enforcement of land reforms and new strategy for forestry.

The Programme

1. Attack on rural poverty. 2. Strategy for rainfed agriculture. 3. Better use of irrigation water. 4. Bigger barrels. 5. Enforcement of land reforms. 6. Special programme for rural labour. 7. Clean drinking water. 8. Health for all. 9. Two-child norm. 10. Expansion of education. 11. Justice to scheduled castes and scheduled tribes. 12. Equality for women. 13. New opportunities for youth. 14. Housing for the people. 15. Improvement of slums. 16. New strategy for forestry. 17. Protection of the environment. 18. Concern for the consumer. 19. Energy for the village. 20. A responsive administration.

The first 20-Point Programme announced on July 7, 1985 was revised seven years later on January 14, 1982. Both the programmes were formulated with a view to ameliorate the living condition of the rural poor.

Punjab, Rajasthan and U.P. top among the 22 states in the implementation of the 20-point programme during 1985-86. The ranking of states is done by a monitoring team specially appointed by the government to see how far the 20-point programme has been implemented by the states.

Tamil Nadu, Gujarat, Haryana, Maharashtra, H.P. and Sikkim are the next six states which have made significant progress towards this goal.

The relative position of the 22 states in terms of their ranks are: Punjab (1), Rajasthan (1), Uttar Pradesh (1), Tamil Nadu (4), Gujarat (5), Haryana (5), Maharashtra (5), Himachal Pradesh (8), Sikkim (8), Andhra Pradesh (10), Tripura (10), Karnataka (12), Madhya Pradesh (12), Manipur (14), Orissa (14), Bihar (16), Meghalaya (17), West Bengal (18), Kerala (19), Nagaland (20), Jammu & Kashmir (21) and Assam (22).

World Cereal Output Falls

World cereal production may fall by 17 million tonnes during 1986 according to the latest FAO forecast made in October, 1986. Compared with 1985, while wheat and rice output is expected to increase by 3 and 9 million tonnes respectively, it is the coarse grains which show a major fall of 29 million tonnes in the current year.

Despite the fall in total cereal production, world carry over stocks of cereals are likely to increase by 37 million tonnes reaching the level of 431 million tonnes in 1987 as against 394 million tonnes in 1986.

Ending stocks in wheat and coarse grains are likely to go up by 4 and 35 million tonnes respectively while there will be a shortfall of 2 million tonnes in rice.

The total cereal trade is estimated to be higher during 1986-87. The FAO forecast shows that imports of wheat and coarse grains will increase by 3 and 5 million tonnes respectively while the trade in rice many remain more or less at the 1985-86 level. Both the developing and developed countries are estimated to increase their imports by 2 and 6 million tonnes in 1986-87 compared with 1985-86.

World Cereals

	1985	1986	1987
	(Million tonnes)		
Production			
Wheat	*510*	*513*	—
Coarse grains	*861*	*832*	—
Rice (paddy)	*466*	*475*	—
Total	*1837*	*1820*	—
Stocks			
Wheat	—	*150*	*154*
Coarse grains	—	*193*	*228*
Rice (milled)	—	*51*	*49*
Total	—	*394*	*431*
World imports			
Wheat	—	*86.0*	*89.0*
Coarse grains	—	*84.8*	*90.0*
Rice	—	*11.8*	*11.8*
Total	—	*182.6*	*190.8*

Source: FAO

Nicobar Islands provide agro-climatic conditions suitable for *oil palm* cultivation. In Kerala this has been taken up by Oil Palm India Ltd. which is a joint venture of the Central and State governments. In Andaman & Nicobar Islands, an area of about 1493 ha has been planted by the Andaman & Nicobar Islands Plantation and Forest Development Corporation.

Some of the important achievements of the Animal Husbandry sector during 1985-86: *Milk* production is expected to reach a level of 44.0 million tonnes despite severe drought in many of the major milk producing states. *Egg* production reached a level of 15.9 billion eggs against a target of 15.5 billion eggs. Brroiler production is expected to cross 80 million birds as against 70 million birds during the previous year.

The Integrated Dairy Development Project commonly known as *Operation Flood* made considerable progress during 1985-86. By September, 1986, a total number of 45754 Dairy Cooperative Societies were organized serving 47.49 lakh farm members. The emergence of a National Milk Grid helps to offset regional and seasonal imbalances in milk collection and distribution. Mother Dairy, Delhi and Metro dairies of Bombay, Calcutta and Madras had a combined total throughput of over 30 lakh litres of milk per day during 1985-86.

The production of *marine and inland fish* in the country increased by about four times during the last 35 years. It increased from 7.52 lakh tonnes in 1950-51 to 28.76 lakh tonnes in 1985-86. The value of exports of marine products from the country increased by 100 times during the last 25 years. The exports of 15,732 tonnes valued at Rs. 392 crores in

1960-61 increased to 83,651 tonnes valued at Rs. 398 crores in 1960-61 and to 83651 tonnes valued at Rs. 398 crores in 1985-86.

India is known as the home of *spcies*. Out of the seventy spices listed by the International Organization for Standards, almost all of them are grown in India. The annual production of all the spices put together comes to 1.5 million tonnes. Though fairly large quantities are exported, bulk of the production is consumed within the country. The share of Indian exports in the world trade of spices is about 25%.

Pepper: Among the Indian spices, pepper is the most important. It is native to the Western Ghats of India. Though the country had a monopoly for pepper production earlier it now accounts for only 20% of the world output. Pepper is grown in an area of 1,10,640 hectares in the southern part of the country producing 27,410 tonnes annually. The world's first and only hybrid variety, 'Panniyur-1' was evolved at the Pepper Research Station, Panniyur in Kerala State. Pepper is a small farmer's crop and generally grown as a mixed crop in the homestead gardens. The commercial grade, Malabar Garbled Extra Bold, fetches the highest price in the international market.

Cardamom: Cardamom, the Queen of Spices, is the next most valuable spice. The crop is indigenous to South India. India is the largest producer with 4,400 tonnes. West Asian countries are the major markets for Indian Cardamom. "Alleppey Green" is the most sought after cardamom in the world.

Ginger, Turmeric, Chillies: India is the largest producer of ginger and turmeric in the world accounting for 60% and 90% the total output respectively. The annual production of ginger is around 80,000 tonnes and turmeric 1,99,000 tonnes. "Cochin ginger" and "Alleppey turmeric" get premium price in the international markets. India is also the world's largest producer of chillies (Capsicums). The varieties commercially grown are of medium pungency. Export of chilli is negligible and more than 95% of the production is consumed locally. There is vast scope for growing the mildest paprikas to the most pungent chillies.

37% Under Poverty Line

A total of 271 million people, constituting 37.4 per cent of the population, live below the poverty line, according to the 1984 estimate, Minister of State for Planning Sukh Ram told the Lok Sabha on November 11, 1987.

With 53.06 million, Uttar Pradesh tops in the number of people below the poverty line.

Those who have an income of Rs. 3500 per annum are considered below poverty line.

The Seventh Plan aims to bring down the percentage to 25.8 by 1990.

Meanwhile the number of income-tax payers in the country has gone up to 6.26 million in 1987 from 4.93 million in 1985 and 5.48 million in 1986, Minister of State for Finance B. K. Gadhvi informed the Rajya Sabha.

He said the Government was taking various steps to bring into the income-tax net more persons engaged in petty business but having substantial income.

THE PLANTATIONS

Plantation sector contributes substantially to the foreign exchange earnings of the country. The principal items of export are tea, coffee, tobacco, cashew and spices.

India continues to be the world's largest producer, consumer and exporter of black **tea.** Compared to 1985, 1986 has not been a very good year in terms of production. During January—December, 1986 production of tea is estimated to be of the order of 618 m kgs, as against 657 m kgs during the corresponding period in 1985.

India continues to be the only producer which manufactures both CTC and orthodox tea in substantial quantities. India's production of CTC is estimated to be of the order of 475 m kgs most of which is consumed at home. The estimated Indian production of orthodox tea is

180 m kgs, most of which is exported.

About 98% of the Indian tea production comes from Assam, West Bengal, Kerala and Tamil Nadu. Area planted(1985):3,99,929 ha.

Indian tea is exported to a avery large number of countries. In terms of volume and value the large buyers are USSR, UK, Arab Republic of Egypt, Iran and Iraq.

The table below gives figures of exports of tea from India for the last three years:

Total Tea

Year	Qty m kgs	Value Rs. in crores	U/Price Rs/kg
83-84	202.3	557.55	27.56
84-85	217.40	771.39	35.48
85-86	222.92	674.24	30.25
86-87	161.85	491.03	30.34

(April—December provisional)

The Tea Board has been set up under the Tea Act, 1953. The Board promotes the development of tea industry.

Coffee cultivation is mainly confined to the three southern states of Karnataka, Kerala and Tamil Nadu. The area has increased from 156,000 hectares in 1974-75 to 234,531 hectares in 1984-85. Non-traditional coffee growing states are Andhra Pradesh, Orissa and all the States on North Eastern region. About 97.8% of coffee holdings are of less than 10 hectares. Area planted (86-87): 2,40,596 ha.

India accounts for about 1.7% of the coffee produced in the world and about 1.25% of exports. Total production in 1986-87 is expected to be 160,000 tonnes. During 1986-87 about 56,000 tonnes is expected to be consumed domestically and exports may exceed the target level of Rs.300 crores in value. Instant coffee exports are of the order of about 800 tonnes.

The export of coffee during 1985-86 was 99,300 tonnes valued at Rs.274.98 crores as compared with 67,800 tonnes valued at Rs.204.97 crores during 1984-85. The provisional data for the first nine months of 1986-87 place exports at 67,700 thousand tonnes valued at Rs.293.66 crores.

The Coffee Board consists of a Chairman and 32 other members representing the different interests.

Year	Production (Qty. in tonnes)
1981-82	149,490
1982-83	129,514
1983-84	104,325
1984-85	196,213
1985-86	121,000 (P)
1986-87	160,000 (E)

P=Provisional
E=Estimated for the period of April—Dec. 1986.

Rubber is mainly grown in the southern states of Kerala, Tamil Nadu and Karnataka. The total area under rubber cultivation in India at the end of 1985-86 was 370000 (E) hectares. Rubber plantations are predominated by small holders numbering 300,000 and they share about 77% of total rubber area. The average yield per hectare of rubber plantation is currently around 860 kgs as against 771 kgs in 1979-80. Area planted(86-87): 3,84,000 ha.

The figures for production/consumption of natural rubber since 1981-82 are as under:

Year	Production (Tonnes)	Consumption (Tonnes)
81-82	152,870	188,420
82-83	165,850	195,545
83-84	175,280	209,480
84-85	187,000	220,000
85-86	200,465	235,440
86-87	220,000 (E)	255,000 (E)

(E) Estimated

Since 1978, India has become a net importer of rubber since consumption has been increasing rapidly. The value of imports is indicated below:

Year	Import (Tonnes)
1981-82	42,750
1982-83	31,659
1983-84	32,175
1984-85	32,408
1985-86	38,538
1986-87	40,000

(Imports are effected through State Trading Corporation of India Ltd.)

Small Cardamom (Eletteria Cardamom) occupies an important position among the foreign exchange earning commodities. Presently production of this commodity is mainly confined to the three States of Kerala, Karnataka and Tamil Nadu. It is estimated that an area of 100,000 hectares (as on 31, March 1985) is under cardamom cultivation in the country. The production during 1985-86 was 4700 tonnes.

The Cardamom Board constituted under the Cardamom Act, 1965 looks after the Cardamom Industry in all its sectors, viz, production, marketing, exports, research...... etc.

Year	Production (tonnes)	Export (Qty)	Export (Value)
81-82	4100	2325	30.20
82-83	2800	1021	16.23
83-84	1600	258	5.44
84-85	3900	2383	64.81
85-86	4700	3272	58.46
86-87	3750	898	12.04
		(Apr-Dec Estimated)	

The flue crued virginia **tobacco** which is the major export type of tobacco, constitutes 30-35 per cent of total tobacco production in the country. The main producing states are Andhra Pradesh, Karnataka and to a small extent, Maharashtra. During 1985-86 season, 51,802 growers have been registered for an area of 1,16,302 hectares to grow FCV tobacco. A quantity of 98.14 million kgs, the shortfall being primarily on account of incidence of wild fly and unfavourable weather condition during the crop growth period in Andhra Pradesh.

During the current season 11,734 growers have been registered covering an area of 16,518 hectares in Karnataka resulting in a production of 16.22 million kgs. In Andhra Pradesh 38,380 growers have been registered covering an area of 86,180 hectares and plantations are still under progress.

While India is the third largest producer of unmanufactured tobacco in the world, it ranks 5th as an exporter in the world market. Our exports of unmanufactured tobacco, however, have been declining over the years on account of stiff competition faced in the international market. It is estimated that exports of unmanufactured tobacco during 1985-86 was 64,430 MTs valued at Rs.139.98 crores and that of tobacco products was 10,508 MTs valued at Rs.21.30 crores. Exports during the current year are likely to exceed this performance.

The development of virginia tobacco is looked after by the Tobacco Board. established by an Act of Parliament 1975.

The exports of **cashew** kernels during the period April-Dec. 1986 were 31,900 MTs valued at Rs.247 crores as against 31,929 MTs valued at Rs.191.06 crores during the corresponding period in 1985. The unit value of exports has increased from approximately Rs.58,000 per MT during 1985 to Rs.77,000 per MT during the current year. The exports of cashew kernels showed improved performance in respect of Australia, FRG, Hong Kong, Japan, Netherlands, New Zealand, Singapore and UAE. The USA continued to remain our major market.

The export of **spices** excluding small cardamom during April–December 1986 was 55,604 MTs valued at Rs.162.17 crores as compared to exports of 37,884 MTs valued at Rs.99.21 crores for the corresponding period last year. While pepper was the main contributor, the export of chillies, ginger and curry powder declined both in terms of quantity and earnings. The Spices Export Promotion Council continued its activities in the field of export promotion, participation in exhibitions abroad, publicity and propaganda.

The Spices Board came into existence on 26th February 1986. The Cardamom Board and the Spices Export Promotion Council were submerged in the Board.

INDUSTRIAL GROWTH POOR

Industrial production recorded a growth rate of 7.7 per cent during the first 10 months of 1986-87, according to the industry ministry.

During 1985-86, however, the growth rate was 8.7 per cent. The last three years have witnessed an average annual industrial growth rate of over 8 per cent.

The six infrastructure industries, comprising electricity, coal, saleable steel, petroleum refinery products, crude petroleum and ce-

Indian Companies Slip

India's five public sector units have retained their places among the 500 largest industrial corporations ouside the US as compiled by the **Fortune** magazine of the US for 1986. However, each of them has slipped from the rank it had occupied in 1985.

Indian Oil has retained its first place among the five units, though among the 500, it is ranked 53 in 1986 in terms of sales at $8.07 billion against 51 in 1985, Indian Oil, chalked up a net income of $105.8 million (rank 148) and had assets $2.9 billion (rank 195).

Oil and Natural Gas Commission has been ranked at 160 among the 500 with sales of $3.45 billion in 1986 against 153 in 1985. Its net income has been at $1.06 billion (rank 9) and assets $8.13 billion (rank 64).

Steel Authority of India has gone down to 182 with sales of $2.94 billion in 1986 against 179 in 1985. SAIL has net income of $130 million (rank 117) and assets of $6.8 billion (rank 80).

Coal India has slipped from the rank of 242 in 1985 to 260 in 1986 with sales of $2.17 billion —a loss of $330 million (rank 491) and assets of $4.6 billion (rank 126).

Bharat Heavy Electricals, the last of the five Indian companies among the 500, has been ranked at 419 with sales of $1.29 billion in 1986 against 413 in 1985. BHEL had a net income of $69 million (rank 207) and assets of $2.24 billion (rank 261).

Thus, Coal India, is the only one of the Indian units among the 500 to have recorded losses in 1986 as well as in 1985 and among the loss-makers it occupies the tenth rank in 1986.

Thus, India has only five companies in the top 500 largest industrial corporations ouside the US, while Japan has as many as 152, followed by Britain with 72, West Germany with 53, France 41, Canada 31, Sweden 22, Switzerland 16; South Korea 11, Australia and Finland 10 each, Italy 9, South Africa and Spain seven each and Brazil 6. India and Belgium are on par with 5 each, followed by Norway, Taiwan, Turkey, Mexico and Denmark with 3 each, Austria, the Netherlands, Britain, Israel and Venezuela 2 each and Argentina, Chile, Columbia, Ireland, Luxembourg, Netherlands Antilles, New Zealand, Panama, Portugal and Zambia 1 each.

Fortune has also ranked the 100 largest banks outside the US and only one bank from India, *State Bank of India*, figures among them occupying the rank of 72 in terms of assets in 1986 against 65 in 1985. SBI has assets of $38.007 billion, deposits of $26.16 billion (rank 79) and net income of $33.7 million. SBI does not figure in either of the categories like "Return on stockholders' equity" or "Change in Profits: The Ten Biggest Increases or The Ten Biggest Decreases." However, in the category, "Assets per Employee," SBI figures in the sub-category, "The Five Lowest," and that, too, as the last among the five with assets of $135,730 per employee against the median of $3.36 million for the 100 banks.

It is interesting to compare *Indian Oil*, the country's largest corporation and ranked 53 among the 500 largest industrial corporations outside the US in terms of sales with the 50 largest industrial corporations in the world.

The last of the 50 world's largest corporations, Thyssen, the steel company from West Germany, had a sales of $13.8 billion in 1986 against Indian Oil's sales of $8.07 billion in 1986. The world's largest corporation is General Motors of the US with sales of $102.8 billion in 1986.

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ment, according for a weight of 28.8 per cent in the general index, have recorded a growth of 7.5 per cent during 1986-87 as compared to the previous year.

The automobile industry showed a substantial growth during 1986-87. During February April 1986-87, while scooter production registered a growth of 34.6 per cent, that of motor cycles recorded a growth rate of 16.4 per cent. Production of cars and jeeps also witnessed a growth of 20.3 per cent and 9 per cent respectively.

The cement industry achieved the production target of 36.50 million tonnes.

The new investment proposals from MRTP companies for industries exempted from the provision of Section 22 A of the MRTP Act were 117, with investment of Rs. 4132 crores in 1986 as against 110 with an investment of Rs. 2889 crores during 1985.

The total number of registrations by the secretariat of industrial approvals went up from 1167 in 1985 to 2387 in 1986, showing an increase of about 104 per cent. During January-April 1987, the number of units registered was 706 as against 465 during January-April 1986.

About 131 units took advantage of the broad-banding scheme during 1986, compared with 52 industrial undertaking during 1985. As many as 133 re-endorsements were made during 1986 under the scheme of re-endorsement of capacity as against 86 in 1985.

The public sector enterprises earned a record post-tax profit of Rs. 2000 crores in 1986-87 against Rs. 1200 crores earned during 1985-86. The public sector enterprises under the control of the industry ministry also registered a growth of 20 per cent in terms of value of production during April-March 1986-87.

The small-scale sector also witnessed a higher growth performance during 1985-86. Production of small-scale units is estimated to have shown a growth of 13 per cent in real terms over 1984-85.

The level of employment in this sector also went up from 90 lakhs in 1984-85 to 96 lakhs in 1985-86, registering a growth of 6.7 per cent. During 1986-87, employment by the small-scale sector is expected to reach 100 lakhs.

The overall production of khadi and village industries for 1985-86 is estimated at Rs. 1124.04 crores compared to Rs. 964.68 crores during 1984-85, registering a growth of 16.5 per cent.

At the same time in all, 1,28,687 small-scale units with an outstanding bank credit totalling Rs. 1,184.22 crore have been identified as sick, Minister of State for Finance Janardhana Poojary told the Lok Sabha in August 1987.

There were 18,12,580 borrowing units in the small-scale industries sector enjoying a total bank credit amounting to Rs. 8,321.04 crore at the end of June 1986.

During 1986-87 Rs. 85.46 crore was disbursed to 2.67 lakh beneficiaries by banks in various States.

Third Giant

India is not doing so bad, after all, on the industrial scene. In a list prepared by "SOUTH" the Third World magazine, of the 600 largest companies in the Third World, India has the third position with 81 companies. South Korea and Brazil with 93 and 83 companies respectively come first and second. China has 11 companies, Pakistan 9 and Bangladesh 2.

The number of countries represented in the list is 48. The top ten countries and the number of companies in them are as under:

South Korea	93
Brazil	83
India	81
Mexico	34
Argentina	30
Malaysia	23
Saudi Arabia	20
Singapore	18
Taiwan	17
Hong Kong	17

In terms of turn over the top ten countries are:

Rank	Company	Country	Turn over (m US $)
1	Petroleos Mexicanos-Pemex	Mexico	20,873
2	CMC	China	20,853
3	Kuwait Petroleum Corpn.	Kuwait	14,900
4	Petroleos de Venezuela	Venezuela	12,723
5	Petramina	Indonesia	12,600
6	Nigerian National Petroleum Corp.	Nigeria	11,000
7	Sinochem	China	10,000
8	Petrobras	Brazil	9,693
9	Brega Oil Marketing	Libya	8,450
10	Indian Oil Corporation Ltd.	India	8,423

The 600th is Hannan Chemicals of South Korea (turn over US $122 million).

It is becoming increasinly clear that the growth target of 8.3 per cent set for the Seventh Plan will be missed for the third year in succession.

It is evident that all is not well with the Indian industries. While the performance of India's private industrial sector has been exemplary, the vast array of public sector enterprises have been grossing up losses of billions of rupees over the years. Of late, the ideological dogmatism seems to have given way to pragmatism. It is too early to judge the outcome.

In the first flush of independence, India opted for a mixed economy. The industrial policy announced on 6th April 1948 envisaged an economy where public and private enterprises cooperated. The public sector reserved to itself monopoly rights in certain departments of industry like arms, atomic power, railway, transport, etc. Other fields were left open for the private sector.

The Industries (Development and Regulation) Act, 1951 made it obligatory for all new and existing industries and any substantial expansion and manufacture of new products by existing concerns to be licensed under the Act.

Industries (Development and Regulation) Amendment Act, 1984. The industries Development and Regulation) Act, 1951 has been amended to confer specific powers on the Central Government to define "Small Scale Undertakings" and "Small Scale Ancillary Undertakings" and on the advice of a high level committee, to reserve specific items for exclusive production in such undertakings.

In 1956 when the Congress Party decided to establish a socialistic pattern of society in India, the 1948 resolution was revised and a new policy was announced on April 30, 1956. Under this policy, industries were divided into two groups – Schedule A and Schedule B. The industries in Schedule A would be entirely state-owned; those in Schedule B would progressively becone state-owned. Non-scheduled industries were left to the Private Sector, but public enterprises were free to enter this sector, if and when the Government so chose.

In 1970 the whole gamut of industrial policy was overhauled. The licensing policy was drastically revised in July 1970. The object of the revision was to give effect to the recommendations of the Industrial Licensing Policy Inquiry Committee (The Dutt Committee) and the Monopolies Inquiry Commissiion. The new licensing policy sought "to assign definite roles and areas of operation to different categories of entrepreneurs."

Industrial production was divided into the *core sector* (basic and strategic industries), the *middle sector* and *delicensed sector*. The middle sector was divided into two categories, the *heavy investment sector* (with a capital of 5 crore or more) and the *light investment sector* (capital between one crore and 5 crore). All industries requiring less than one crore investment were classified as delicensed.

The revised policy also introduced the concept of a *joint sector* in industry in accordance with the recommendations of the Dutt Committee.

The Monopolies & Restrictive Trade Practices Act, 1969 was brought into force in June, 1970. The Act placed a number of restrictions on big units with a total capital of 20 crore or over, in regard to appointments of directors, expansion of business and amalgamations or mergers.

The Industrial Policy of the Janata government was to be based on the agricultural economy. "The prosperity and the distribution of income arising from a broad-based growth

Tata's Tops In Profits

The assets of the first 20 large industrial houses increased by 29.5 per cent in 1985, Minister of State for Industry M. Arunachalam informed the Lok Sabha on November 11, 1987.

This increase was due to expansion, diversification, establishment of new undertakings, modernisation and amalgamation.

The Birla group has the most assets, worth Rs. 4111.85 crore, followed by the Tata group with Rs. 3698.84 crore and Thapar with Rs. 1067.86 crore.

Among these houses, the Tatas topped in making profifs achieving Rs. 251 crore before tax. They were followed by Birlas (Rs. 154 crores) and Reliance (Rs. 71.62 crores).

The Hundred Giants

In India there are 100 giant companies in the private sector doing more than 100-crores' business in an accounting year.

Their ranking according to the net-sales in 1985-86 is as follows:-

Name of the company	Net Sales (Rs. in crores)
1. Tata Iron & Steel	1147.66
2. Tata Engineering	868.07
3. Reliance Ind.	711.35
4. Hindustan Lever	613.50
5. Associated Cement Companies	550.88
6. Delhi Cloth Mills	528.91
7. Larsen & Toubro	433.22
8. Southern Petrochemicals	432.62
9. Mahindra & Mahindra	405.41
10. Grasim Ind.	401.61
11. IEL	383.60
12. Escorts	331.26
13. Brooke Bond	329.95
14. J.K. Synthetics	325.13
15. Gujarat State Fertilizers	316.65
16. Ashok Leyland	299.81
17. Calcutta Electric	295.78
18. Century Spg	293.05
19. Modi Rubber	280.68
20. Lipton India	277.93
21. Dunlop India	270.00
22. Hindustan Motors	262.12
23. Tata Power	259.57
24. ITC	245.44
25. Peico Electronics	240.05
26. Birla Jute	239.52
27. Ballarpur Ind.	234.43
28. Hindustan Aluminium	232.32
29. Gujarat Narmada Valley Fertilizer	230.37
30. Bajaj Auto	226.28
31. National Organic Chemical	219.40
32. Bombay Suburban	215.62
33. Union Carbide	198.83
34. Bata India	196.76
35. Indian Aluminium	190.86
36. Ambalal Sarabhai	189.37
37. Guest Keen Williams	187.75
38. Crompton Greaves	182.41
39. Britannia Ind.	182.40
40. Nirlon Synthetics	181.42
41. Orkay Silk Mills	180.11
42. Premier Automobile	175.84
43. Rallis India	175.26
44. Madura Coats	175.15
45. Tata Oil Mills	170.93
46. Ceat Tyres	160.82
47. MRF	160.79
48. J.K. Industries	157.20
49. Andhra Valley Power	156.29
50. Voltas	151.98
51. Ahmedabad Electricity	150.97
52. E.I.D. Parry	150.88
53. Mangalore Chemicals	149.90
54. Modi Ind.	148.74
55. Shaw Wallace	148.13
56. Coromandel Fertilizers	143.01
57. Mafatlal Fine	142.68
58. Kesoram Ind.	142.30
59. Glindia	142.02
60. Zuari Agro	141.44
61. Standard Mills	140.06
62. Hindustan Ciba-Geigy	139.85
63. Siemens India	137.94
64. Tata Tea	137.11
65. Food Specialities	136.62
66. Tata Chemicals	136.57
67. Indian Rayon	135.88
68. Orient Paper	134.72
69. Bombay Dyeing	133.97
70. Hoechst India	133.57
71. Kirloskar Cimmins	133.30
72. Motor Industries	133.07
73. Raymond Woollen	132.88
74. Metal Box	130.62
75. Shree Digvijay Cement	129.69
76. Scindia Steam	126.90
77. Greaves Cotton	126.24
78. Ferro Alloy Corporation	124.45
79. Zenith Steel Pipe	120.27
80. Mukand Iron & Steel	118.46
81. Best & Crompton	118.38
82. Good Year	117.25
83. Asian Paints	116.95
84. Khatau Makanji	114.42
85. Straw Products	112.22
86. Amrit Banaspati	110.98
87. Colgate Palmolive	110.69
88. Tube Investments	110.05
89. India Cement	109.09
90. Jiyajeerao Cotton	107.59
91. Binny	107.26
92. Bajaj Tempo	105.25
93. Tata Hydro Electric	105.09
94. Jagatjit Cotton	101.71
95. Indian Organics	101.37
96. KCP	100.37
97. Special Steel	100.21
98. Mafatlal Ind.	100.17
99. Indian Dyestuff	99.84
100. Indian Oxygen	98.55

of agriculture and related activities in the countryside have to provide the basic demand for a wide range of industries producing articles of consumption.

1984-85 saw a number of steps by Government to liberalize industrial policy and streamline investment procedures. Within the overall framework of the Industrial Policy Resolution of 1956, a growth-oriented approach continued to be the basic thrust of the industrial policy.

All these measures were turned towards the removal of constraints on production and enhancing the level of capacity utilization, as well as raising productivity and imparting maximum speed to the process of growth in the industrial economy.

Industries (Development and Regulation) Act, 1951 continues to provide the necessary regulatory framework to ensure healthy and accelerated growth of the various constituents of the industrial sector. With a view to removing certain doubts the power of the Central Government to reserve specific items for exclusive manufacture by small scale industries, the Act has been amended to empower the Central Government to reserve, on the advice of an Advisory Committee, items for small scale sector.

With a view to providing flexibility to the manufacturers to adjust their product-mix according to the market demand and with a view to encouraging larger volume of production so as to secure the benefits of economies of scale, broad categorization of all types of two-wheelers and four-wheeled vehicles as well as paper and paper board has been brought about.

In order to ensure more expeditious disposal of licensing applications from MRTP companies, it was decided to consider such applications simultaneously under the industries (Development and Regulation) Act and the Monopolies and Restrictive Trade Practices Act. The objective stands further facilitated by combining the Department of Company Affairs with the Ministry of Industry.

Trade Gap Shrinks

With a significant spurt in exports that far outpaced the rate of growth in imports, India's foreign trade deficit declined by Rs. 438 crores to Rs. 7513 crores during 1986-87 from Rs. 7951 crores in 1985-86.

According to the provisional figures, the aggregate value of exports recorded an increase of 20.4 percent to Rs.12,550 crores during 1986-87. This surge in exports is in contrast to a decline of 7.8 per cent during 1985-86. The total value of imports during the year ending March 1987 was Rs. 20,063 crores as against Rs. 18,371 crores in the preceding years implying a growth rate of 9.2 percent.

In fact, during the first 10 months of the fiscal year 1986-87, while the exports performance was extremely encouraging, the rate of increase in imports amounted to just 1.5 per cent. However, during the remaining two months of the year, there was a noticeable spurt in imports, leading to a rise of 9.2 per cent in the overall value of imports during 1986-87.

In regard to the export growth during 1986-87, one point is worth noting. The 20.4 per cent increase in exports is in the context of an absolute decline in exports during 1985-86. If allowance is made for this, the export growth rate during the year ending March 1987 would be much less than 20.4 per cent. In fact, compared to the value of exports during 1984-85, exports during 1986-87 represent an increase of only 5.9 per cent.

India's foreign trade
(Rs. Crores)

	Exports	Imports	Trade deficit
1980-81	6711	12549	5823
1981-82	7806	13608	5802
1982-83	8803	14293	5490
1983-84	9771	15831	6060
1984-85	11855	17173	5318
1985-86‡ (P)	10420	18371	7951
1986-87 (P)	12550	20063	7513

‡ The revised figure of exports is Rs. 11012 crores and of imports Rs. 19766 crores during 1985-86.
(P) ProvisionalÑ

DEFENCE

Since the days of border wars India has gone all out to build up her armed forces. Today India is having one of the largest military forces in the world with an army of nearly one million personnel.

The authority of the Supreme Commander of the Armed forces is vested in the President of India. Responsibility for national defence, however, rests with the cabinet. All important issues having a bearing on defence are decided by the Cabinet Committee on Political Affairs which is presided over by the Prime Minister. The Defence Minister is responsible to the Parliament for all matters concerning the Defence Services.

The direct responsibility for operational and administrative control of the Armed Forces is that of the Ministry of Defence and the three Armed Forces Headquarters of Army, Navy and Air Force. The Ministry of Defence acts as the central agency for controlling and coordinating the development of the three services, for conveying the policy decisions of the Government of India to the three Services Headquarters for implementation and for obtaining financial sanction from parliament for defence expenditure.

The Ministry of Defence is headed by the Minister of Defence who is of Cabinet rank. He is assisted either by Ministers of State for Defence or Deputy Defence Ministers. The Chief financial authoroity is the financial adviser to the Ministry of Defence. The Defence Ministry comprises four departments: (i) Department of Defence. (ii) Department of Defence Production. (iii) Department of Defence Supplies. (iv) Department of Defence Science and Research.

The Ministry is directly responsible for the defence of India, provisioning and administering the Armed Forces, viz. Army, Navy and Air Force, procurement of arms, weapons, ammunitions, ships, aircraft, vehicles, equipment and items of logistic support required by the Armed forces, the location and creation of indigenous capacity for production of hitherto imported items, and promotion of research and development in the field of defence.

Control of civilian services attached to the Ministry, formation of cantonments and delineation of their areas and regulation of housing accommodation for defence services personnel are among the other responsibilities of the ministry.

The main auxiliaries are: (i) The Territorial Army; (ii) Coast Guards; (iii) Auxiliary Air Force; (iv) National Cadet Corps comprising wings of the Army, Navy and Air Force.

Considering the size of the country, its very long borders and coastline, and also the strategic position it occupies in South Asia and the Indian Ocean, India has to maintain comparatively large defence forces. Today India is reported to have the fourth largest Army in the world, the fifth largest air force and the seventh largest navy. India's defence outlay has steadily increased from Rs. 806 crore in 1964-65 to nearly 8 times that figure (Rs. 6800 crore) today.

The Armed Forces consists of the three main services, The Army, the Navy and the Air Force, each of which is headed by their respective *Chief of Staff* viz., the Chief of the

Cochin Yard to Build Aircraft Carrier

India's first indigenously—built aircraft carrier would be commissioned before the end of this century, the chief of naval staff, Admiral R. H. Tahiliani, announced on September 2, 1987.

He said preliminary work on the project had already commenced and the Cochin shipyard would soon be taking up the construction of the aircraft carrier.

Admiral Tahiliani said India had acquired the status of "blue water navy" and brushed aside reports that the Indian navy was not equal to that of Pakistan.

Referring to a report by a U.S. defence expert that India lacked two basic naval doctrines, he said "there is no question of our not having a doctrine wherein we cannot safeguard our maritime interests. No navy can develop without an underlying philosophy of how to safeguard maritime interests."

Army Staff, The Chief of Naval Staff and the Chief of Air Staff who are of the rank of General and equivalent. These three chiefs of staff constitute the chiefs of staff committee, the chairmanship of which rotates among the three service chiefs according to seniority. The Committee is assisted by sub-committees dealing with specific problems such as planning, training, communication, etc.

The Army Headquarters is located in New Delhi. The Chief of the Army Staff is assisted by the following principal staff officers: (i) Vice Chief of Army Staff; (ii) Deputy Chief of Army Staff; (iii) Adjutant General; (iv) Quartermaster General; (v) Master-General of Ordnance; (vi) Military Secretary; (vii) Engineer-in-Chief.

The Army is organized into the following Commands: (i) Western; (ii) Eastern; (iii) Northern; (iv) Southern; (v) Central.

Each Command is commanded by a General Officer Commanding in Chief of the rank of Lieutenant General. The Command is further divided into Areas, Independent sub-Areas and Sub-areas, commanded by a Major General and Brigadiers respectively.

The Army consists of a number of arms and services. These are: (i) The President's Body Guard; (ii) Armoured Corps; (iii) Regiment of Artillery; (iv) Corps of Engineers; (v) Corps of Signals; (vi) Military Nursing Service; (vii) Army Medical Corps; (viii) Corps of Electrical and Mechanical Engineers; (ix) Remount & Veterinary Corps; (x) Military Farm Services; (xi) Army Education Corps; (xii) Intelligence Corps; (xiii) Corps of Military Police; (xiv) Army Physical Training Corps; (xv) Pioneer Corps; (xvi) Army Postal Service Corps; (xvii) Defence Security Corps.

The Territorial Army is a voluntary part-time citizens' force consisting of persons who are not professional soldiers but civilians who are eager to play a role in the defence of the country. All Indian nationals between 18 and 35 years of age are eligible to join it. The T.A. comprises infantry, engineering and medical units.

National Cadet Corps. NCC is a youth organization, open to students of academic institutions. It aims at development of leadership qualities, character and spirit of sportsmanship, cooperation and service. It is a voluntary organization and neither officers nor cadets are under any obligation or compulsion to enter active military service.

NCC consists of 3 divisions, Senior, Junior and Girls with Army, Navy and Air Wings. The authorized strength of the senior division is 4 lakh, Junior Division 7 lakh and girls 62,000 among the three wings of the Armed Forces.

The Headquarters of *the Navy* is located in New Delhi. The Chief of Naval Staff is assisted by the following principal staff officers:

(i) Vice Chief of Naval Staff; (ii) Chief of Material; (iii) Deputy Chief of Naval Staff; (iv) Chief of Personnel; (v) Controller of Warship Production and Acquisition; (vi) Chief of Logistics.

The Navy has three Naval Commands commanded by Flag Officers Commanding-in-Chief of the rank of Vice Admiral. They are: (i) Western Naval Command at Bombay; (ii) Eastern Naval Command at Vishakhapatnam; (iii) Southern Naval Command at Cochin.

There are two fleets, the Western and the Eastern, commanded by Flag Officers Commanding, of the rank of Vice-Rear Admiral. There are also Flag Officers commanding Goa Area and Andaman & Nicobar Islands. In addition, there are Naval Officers-in-charge of Bombay, Madras and Calcutta.

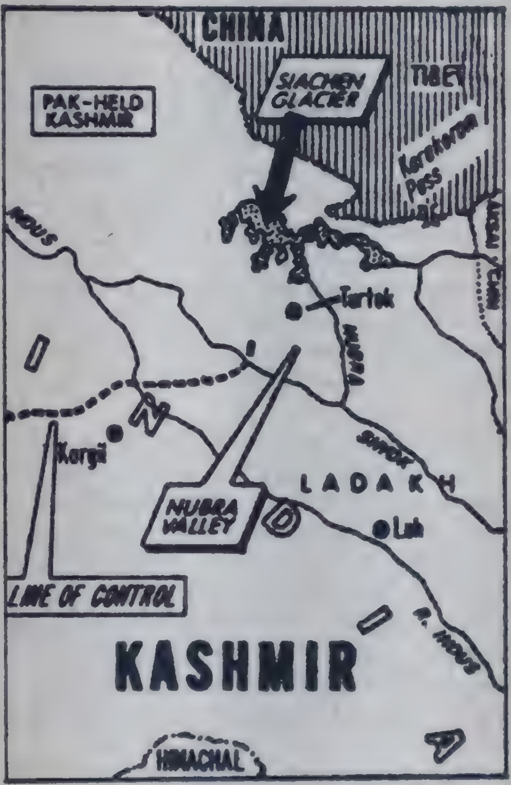
The two fleets consist of the aircraft carriers INS Vikrant, and the newly acquired INS Viraat, a number of frigate squadrons comprising modern anti-aircraft, anti-submarine and general purpose ships, missile equipped frigates/destroyers, a squadron of anti-submarine patrol vessels, several mine sweeping squadrons, submarines, a submarine depot ship, a submarine rescue vessel, landing ships capable of carrying tanks and personnel, and several fast attack craft carrying surface-to-surface missiles. In addition there are survey ships, survey craft, fleet tankers and a number of auxiliary craft such as tugs and mooring vessels. The survey units of the Navy carry out surveys of India's coast and surrounding waters, approaches to harbours, etc.

A naval organization functions at Port Blair to ensure the security of the Bay Islands.

The Navy took over the responsibility of Maritime Reconnaissance from the IAF and has acquired suitable MR aircraft for the purpose.

The navy has a sizeable Air arm with various types of fixed wing aircraft and helicopters such as Super Constellation, IR-38, Alizes, Sea Harriers, Islanders, Sea Kings, Alsutter and KA-25. These are used in various roles such as maritime reconnaissance, anti-submarine

The Siachen Problem



Pakistan violated Indian borders twice—in March and in September 1987.

The first one in early 1987 was not very serious though both the countries deployed troops along the border. By an agreement dated March 2, 1987 both the countries agreed to pull out 70 per cent of the troops deployed close to the border from Rann of Kutch to Punjab (Pakistan). However, Punjab's (India) border with Pakistan was excluded from the purview of the agreement and Indian troops could continue in their positions to prevent movement of terrorists and anti-social elements.

Earlier as per agreement dated Feb. 4, 1987 India and Pakistan had withdrawn about 1,50,000 troops from the Ravi-Chenab sector. Pakistan President Zia visited India to watch a cricket match between India and Pakistan. He also met Prime Minister Rajiv Gandhi.

However, in September 1987 Pakistan waged an attack on Indian posts in the Saltoro Ridge off Siachen area. Pakistani attacks were launched on three nights.

The attacks were preceded by very heavy concentrations of artillery fire. Rockets and missiles were also used by the Pakistani forces. Indian side suffered casualties. However, they were much lighter compared to the Pakistani losses.

The Pakistani troops made simultaneous attempts to take control of the Sia La, Indira Col, Bilafound and the Saltoro on September 23, 24 and 25.

The four passes are the main access to the glacier which provides a backdoor entry into the Ladakh district. This is one of the most serious incidents of border clashes across the line of actual control since 1983 when Pakistani troops made their first bid to control the glacier. Sporadic clashes between the two sides had been going on in the region since July 1987.

The September skirmish was the fourth major attempt by Pakistan to capture the strategic passes. The Saltoro ridge starts from the Pakistan-occupied Kashmir territory to China and runs all along to Leh, the capital of Ladakh.

work, search and rescue, logistic functions such as lifting troops and supplies, air interception, ground support and anti-shipping.

Since 1964, India has developed considerably in building her own ships. At present a number of ships, submarines and smaller craft are under construction for the navy at yards such as Mazagaon Docks Ltd, at Bombay, Garden Reach Shipbuilders at Calcutta and Goa Shipyard.

Six Leander class frigates, INS Nilgiri, Himgiri, Udaygiri, Dunagiri, Taragiri, Vindhyagiri, one ship of indigenous design INS Godavari,, two survey ships INS Sandlayak and Nirdeshak, seaward Defence boats, Harbour utility and ocean going tugs, a mooring vessel and patrol craft have been built and commissioned.

The addition of three general purpose, missile carrying destroyers have added considerably to the operational efficiency of the Navy.

The Coast Guatrd forms a part of the Defence Ministry. Its headquarter is at New Delhi and is headed by a Director General. It has three regional headquarters at Bombay (Western region), Madras (Southern region) and Port Blair (Andaman and Nicobar Islands).

The main duties of the Coast Guard are protection of coastal and offshore installations and terminals, protection of fisheries, patrol of the exclusive economic zone to prevent poaching, anti-smuggling work, and search and rescue missions.

Although the Coast Guard initially comprised almost entirely of ships of the Navy and personnel on deputation, today the personnel of Coast Guard are mostly recruited directly and ships are built either in Indian shipbuilding yards or purchased from abroad.

The coast guard fleet comprises ships such as KUTHAR (ex-navy), VIKRAM, VIJAY, VEERA (indigenously built), a number of offshore patrol vessels and a number of inshore patrol vessels.

The Air Force is organized into five operational Commands and two support Commands. These are:

(i) Western Air Command; (ii) Eastern Air Command; (iii) Southern Air Command; (iv) Central Air Command; (v) South Western Air Command; (vi) Training Command; (vii) Maintenance Command.

The Air Headquarters is located in New Delhi. The Chief of Air Staff is assisted by the following Principal Staff Officers:

(i) Vice Chief of Air Staff; (ii) Deputy Chief of Air Staff; (iii) Air Officer in Charge, Administration; (iv) Air Officer in Charge, Personnel; (v) Air Officer in Charge, Maintenance.

At the time of partition in 1947, India's share of the Air Force was less than 10 full squadrons. Today there are more than 50 squadrons comprising combat, transport, liaison and reconnaissance aircraft/helicopters. There are more than 1000 aircraft and helicopters of which the main types are Camberra, Hunter, Ajeet, Kiran, Chetak, Mig-21/- 23/- 25, Sec-7, An-32, Il-76, Mi-8, Jaguar and Mirage-2000. In addition to purchases from abroad, India also designs and makes her own aircraft. The rapid development of the IAF has resulted in a well balanced force comprising modern aircraft with state-of-the-art equipment and all-weather capability. The IAF has a complete range of weaponry including infra-red and radar homing missiles which can be fired day or night with utmost accuracy.

In matters like medical services, public relations, etc., which are common to all three services, they are served by Inter-Service Organizations which function directly under the Ministry of Defence. Some such important organizations are:

(1) Armed Forces Film and Photo Division, (2) Armed Force Medical Services, (3) Defence Lands and Cantonments, (4) Directorate

Commissioned Ranks

Army	*Navy*	*Air Force*
Field Marshal	*Admiral of the Fleet*	*Marshal of the Air Force*
General	*Admiral*	*Air Chief Marshal*
Lieut. General	*Vice Admiral*	*Air Marshal*
Major General	*Rear Admiral*	*Air Vice Marshal*
Brigadier	*Commodore*	*Air Commodore*
Colonel	*Captain*	*Group Captain*
Lieut. Colonel	*Commander*	*Wing Commander*
Major	*Lieut. Commander*	*Squadron Leader*
Captain	*Lieutenant*	*Flight Lieutenant*
Lieutenant	*Sub Lieutenant*	*Flying Officer*
Second Lieutenant	*Acting Sub Lieutenant*	*Pilot Officer*

Sub-Continental Military Balance*

	Pakistan	*India*	*Bangladesh*
ARMY	*450,000*	*960,000*	*73,000*
Corps	*7*	*8*	—
Armoured Divisions	*2*	*2*	—
Mechanised Divisions	—	*1*	—
Infantry Divisions	*16*	*18*	*5*
Independent Armoured Brigades	*4*	*5*	*1*
Independent Infantry Brigades	*5*	*7*	*12*
Para Brigades	—	*1*	—
Independent Arty. Brigades	*7*	*17*	*2*
Mountain Divisions	—	*10*	—
NAVY	*11,000*	*47,000*	*5,300*
Submarines	*6*	*8*	—
Midget Submarines	*5*	—	—
Aircraft Carriers	—	*1*	—
Destroyers	*8*	*3*	—
Frigates	—	*21*	*3*
Corvettes	—	*3*	—
Missile Boats/FAC	*24*	*16*	*22*
Patrol Craft	*20*	*6*	*9*
Mine sweepers	*3*	*16*	—
Landing Ships	—	*6*	—
Fleet Tankers	*1*	*2*	—
Air Force	*17,600*	*113,000*	*3,000*
Combat Aircraft	*314*	*920*	*27*
Combat Squadrons	*18*	*39*	*3*
Helicopter Squadrons	*2*	*9*	*1*
	2	*14*	*1*

* 1984-85 figures based largely on materials from the International Institute of Strategic Studies, London.

of Public Relations, (5) Historical Section, (6) Joint Cipher Bureau, (7) Ministry of Defence Library, (8) National Defence College, (9) Service Sports Control Board, (10) Videshi Bhasha Vidyalaya.

Some of the noteworthy inter-service training establishments are: (1) Institute of Defence Management, (2) Institute of Armament Technology, (3) Defence Services Staff College, (4) National Defence Academy.

Armed Forces Medical Services: Comprise Army Medical Corps, Army Dental Corps and Military Nursing Service under the overall control of Director General, Armed Forces Medical Services.

Armed Forces Medical College, Pune: Trains civilian candidates for the MBBS course of Pune University. 108 boys and 26 girls are admitted every year. Candidates who receive stipends number 110. All boys have to serve as Permanent Commissioned officers. Others may serve only 7 years. Post-graduate specialization courses are also provided at Pune. Training in medical problems peculiar to aviators is given at the Institute of Aviation Medicine at Bangalore and those peculiar to Navy such as those special to divers and submariners, at the Institute of Naval Medicine, Bombay.

Cantonments were established under the Cantonments Act, 1924 with the purpose of accommodating Armed Forces personnel and safeguarding their health, welfare and security. Since the cantonments had a significant civi-

INS Viraat, the second aircraft carrier of the Indian Navy. Originally a British ship named Hermes, INS Viraat has a standard displacement of 29,800 tonnes and can carry 30 aircrafts at a time. INS Vikrant weighing 19,000 tonnes can carry 20 aircrafts at a time.

lian population, it was found necessary to provide for local self-government of those areas.

The Cantonment Boards formed under the Cantonments Act 1924, look after the municipal administration in their areas under the central government. These boards are responsible for providing civil services to the community and for looking after their welfare. There are 62 cantonments in India.

The defence production activities are broadly divided into two groups viz. departmentally run Ordnance Factories and Defence Public Sector undertakings. Whereas the arms, ammunition, tanks, vehicles, etc. are made in the Ordnance Factories, the Defence public sector undertakings are geared to produce ships, submarines, aircraft, earthmoving equipment, machine tools, missiles, sensors, communication equipment, etc. The Ordnance Factories and Defence PSU's have an ongoing programme of indigenisation.

Public Sector Undertakings: There are presently 9 PSUs under the administrative control of the Ministry of Defence (Department of Defence Production). Out of them eight PSUs are in production making the aforementioned equipment. They are:

(1) Hindustan Aeronautics Ltd. (HAL), (2) Bharat Electronics Ltd. (BEL), (3) Bharat Earth Movers Ltd. (BEML), (4) Mazagaon Docks Ltd. (MDL), (5) Garden Reach Ship-builders and Engineers Ltd. (GRSE), (6) Goa Shipyards Ltd. (7) Praga Tools Ltd. (PTL), (8) Bharat Dynamics Ltd. (BDL).

The ninth PSU, Mishra Dhatu Nigam Ltd. (MDNL or "Midhani") manufactures the special alloys and metals required by aeronautics, space and electronics industries.

The nine Defence PSUs have a total work force of 97,522 out of which HAL has the maximum (40,470) and MDNL has the least (1070).

Research & Development: The R&D activities are carried out in 35 main laboratories/establishments and a few field units located in different parts of the country. The organization is headed by the Director General, Research & Development (DGR & D) who is also the Secretary to the Govt. for Defence Research. He is assisted by three chief controllers.

TRANSPORT: RAIL, ROAD & AIR

Indian Railway has grown into Asia's largest and the world's fourth largest railway system from a modest beginning in April 1853 when the first train steamed off from Bombay to Thana, stretch of 34 km. As on 31 March 1985, it has a route kilometrage of 61850. It is also the biggest public sector undertaking in the country.

Indian railways run about 11270 trains everyday connecting 7093 stations. During 1984-85, they carried 333.32 crore passengers and 26.45 crore tonnes of freight traffic. Indian railways operate on three gauges – broad gauge, metregauge and narrow gauge. The operation fleet consists of 10,128 locomotives, 38583 coaching vehicles and 3,65,390 wagons.

On 3 March 1985 it had total assets of Rs.10,377.3 crore and a staff strength of over 16.03 lakh regular employees.

Railway Progress Chart

	1950-51	1984-85
Route length		
Electrified (km)	388	6325
Non-electrified (km)	53208	55525
Total (km)	53596	61850
Passengers (lakh)	12840	33332
Goods (lakh tonne)	930	2648

Since the beginning of the five year plan in 1950-51, the number of diesel locomotives has gone up by more than 171 times, from 17 in 1951 to 2905 in 1984-85 and electric locomotives by more than 17 times i.e. from 72 to 1253.

Indian railways entered the *Metro Age* during 1984-85. A section between Esplanade and Bhavanipur in Calcutta covering a distance of 3.5 km connecting five stations was opened for commercial operation during this period. Another stretch of 2.2 km between Dum Dum and Belgachia was opened later on.

The responsibility for the administration and management of the railways vests in the Railway Board under the overall supervision of a Cabinet Minister assisted by a Minister of State. The Board consists of a Chairman, who is an ex-officio Principal Secretary to the Government in the Ministry of Railways, a Financial Commissioner and Four other members, who are all ex-officio Secretaries to Government.

The Railways are divided into nine zones, each headed by a General Manager.

Zonal Divisions

Railway	Headquarters	Route km
Central	Bombay V.T.	6472
Eastern	Calcutta	4270
Northern	New Delhi	10977
North-Eastern	Gorakhpur	5163
North-East Frontier	Maligaon (Guwahati)	3739
Southern	Madras	6722
South Central	Secunderabad	7137
South Eastern	Calcutta	7075
Western	Bombay–Churchgate	10295

Roads: Indian road net work is one of the largest in the world. The total road length in India as on 31 March 1983 is 15,5[illegible]204 km. The outlay for road development under the Seventh Plan for central sector is Rs.1019.75 crore, for state sector Rs.3,666.98 crore and for Union Territories Rs.513.31 crore.

India has developed a *national highway* system. It has a total length of 31,987 km. An outlay of Rs.1,019.75 crore has been provided in the Seventh Plan for the development of national highways. Though the national highways constitute only two per cent of the total road length, they carry nearly one-third of the road traffic.

State highways and district and rural roads are the responsibility of the state governments. Roads are being developed in rural areas under the minimum needs programme the objective being to link all villages with a population of 1,500 and above and 50 per cent of the villages with a population of 1,000–15,000 with all weather roads by 1,990.

The *Border Roads Development Board* was setup in March 1960 for accelerating economic development and strengthening defence preparedness through rapid road communication. *Border Road Organization* (BRO) ex-

India's Long Distance Trains

The Indian Railways run on an average about 900 Mail/Express trains connecting important cities, state capitals, pilgrim centres, etc. Their average speed is 47.1 km per hour (BG) and 32.8 km per hour (MG). Some of the trains cover distances of over 3,000 km in one scheduled trip. The important long distance trains between selected pairs of points are:

Number and Name of the Train		Pairs of Stations between which it runs	Distance (km)
901/902	Express	Guwahati-Trivandrum (Weekly)	3,974
125/126	Kerala Express	New Delhi-Tvm. (Daily)	3,054
911/912	Express	Gorakhpur-Cochin Harbour Terminus (Weekly)	2,991
903/904	Express	Ahmedabad-Tvm (Weekly)	2,720
127/128	Karnataka Express	New Delhi-Bangalore (Daily)	2,444
175/176	Neelachal Express	Puri-New Delhi (3 days a week)	2,136
81/82	Jayanti Janata Express	Bombay VT-Kanayakumari (Daily)	2,149
15/16	Grand Trunk Express	New Delhi-Madras (Daily)	2,188
121/122	Tamil Nadu Express	New Delhi-Madras (4 days a week)	2,188
171/172	Express	Jammu Tawi-Bombay Central (Bi-weekly)	1,973
59/60	Gitanjali Express	Bombay-Howrah (5 days a week)	1,968
173/174	Himgiri Express	Howra-Jammu Tawi (3 days a week)	1,967
155/156	Tinsukia Mail	New Delhi-Guwahati (Daily)	1,937
81/82 and 103/104	Deluxe Express	Amritsar-New Delhi-Howrah (5 days a week)	1,889
3/4	Frontier Mail	Amritsar-Bombay Central (Daily)	1,836
25/26	Deluxe Express	Amritsar-New Delhi-Bombay Central (Bi-weekly)	1,835
1/2	Kalka Mail	Kalka-Howrah (Daily)	1,709
123/124	Andhra Pradesh Express	New Delhi-Secunderabad (4 days a week)	1,665
141/142	Coromandal Express	Madras-Howrah (Daily)	1,663
145/146	Navajivan Express	Ahmedabad-Madras (2 days a week)	1,952
101/102	Rajdhani Express	Howrah-New Delhi (4 days a week)	1,437
151/152	Rajdhani Express	Bombay Central-New Delhi (5 days a week)	1,384
9/10	Mail	Bombay-Madras (Daily)	1,279
153/154	Jayanti Janata Express	New Delhi-Harsuni (Daily)	1,173
19/20	Konarak Express	Bhubaneswar-Secunderabad (Daily)	1,144
181/182	Sarvodaya Express	New Delhi-Ahmedabad (Bi-weekly)	1,092
191/192	Magadh Express	New Delhi-Patna (Daily)	992
167/168	Malwa Express	New Delhi-Bhopal-Indore (3 days a week)	969
505/506	Ashram Express (MG)	Delhi-Ahmedabad (4 days a week)	934
101/102	Minar Express	Secunderabad-Bombay (Daily)	900
15/16	Chetak Express	Delhi-Udaipur	739
57/58	Kanchanjunga Express	Howrah-New Jalpaiguri (6 days a week)	693
91/92	Prayag Raj Express	New Delhi-Allahabad (Daily)	627
509/510	Mandor Express (MG)	Jodhpur-Delhi (Tri-weekly)	626
119/120	Gomti Express	New Delhi-Lucknow (6 days a week)	503
135/136	Vaigai Express (MG)	Madras-Egmore Madurai (Daily)	402
507/508	Marwar Express (MG)	Ahmedabad-Jodhpur (Bi-weekly)	455
79/80	Taj Express	New Delhi-Gwalior via Agra (Daily except Wednesday)	317
501/502	Pink City Express	Delhi-Jaipur	308

ecutes its works departmentally. So far BRO has constructed about 18,900 km of roads and are maintaining about 17,500 km of roads.

Waterways: India has the largest merchant shipping fleet among the developing countries, and ranks 16th in the world in shipping tonnage. As compared to 1.92-lakh GRT (Gross Registered Tonnage) at the time of independence, the country's operative tonnage as on 30 June 1986 is 55.83 lakh GRT.

There are 55 shipping companies in the country of which 19 are engaged exclusively in coastal trade, 29 in overseas trade and the remaining of in both coastal and overseas trade. The only government shipping company viz *Shipping Corporation of India* carries on both.

The SCI which is one of the biggest shipping lines in the world, has a merchant fleet of 137 vessels of 31.32 lakh GRT as in June 1986. During 1984-85, the SCI's gross earnings amounted to Rs. 616.37 crore. The tonnage of SCI accounts for about 56 per cent of the total Indian tonnage.

The Mogul Line Ltd. under public sector shipping company was merged with the SCI on 30 June 1986.

The major private sector shipping companies which own one lakh or more GRT are the Scindia Steam Navigation Company Ltd. (4.03 lakh GRT), Great Eastern Shipping Company Ltd. (4.50 lalh GRT), India Steamship Company Ltd. (1.01 lakh GRT), South India Shipping Corporation Ltd. (2.74 lakh GRT), Ratnakar Shipping Company Ltd. (1.33 lakh GRT), Chowgule Steamship Ltd. (2.27 lakh GRT) and Damodar Bulk Carriers Ltd. (1.13 lakh GRT).

Indian Register of Shipping (IRS) has its head office in Bombay and out-post offices at Bombay, Calcutta, Vishakhapatnam, Madras, Cochin, Goa, Rourkela and Tiruchirapally.

There are four major and four medium size shipyards in India. There are another 32 small shipyards in the private sector which caters to domestic requirements for small crafts

Of the major ones Hindustan Shipyard Ltd., Vishakhapatnam and Cochin Shipyard Ltd. are under the control of the Ministry of Surface Transport. The other ones namely, Mazagon Dock Ltd., Bombay and Garden Reach Shipbuilders & Engineers, Calcutta are under the Department of Defence Production, Ministry of Defence.

The Hindustan Shipyard has built 89 ships since 1947. Its present annual production capacity is about 428 ships of 21,500 Dwt. *The Cochin Shipyard*, setup with Japanese collaboration, is designed to have a dock for building ships upto 85,000 Dwt and a repair dock to accommodate ships upto 1,00,000 Dwt. They have so far delivered three ships of 75,000 Dwt bulk carriers.

Inland Waterways: India has about 5,200 km.

IA—the Second Largest Carrier

Indian Airlines is the second largest domestic carrier in the world outside the United States.

According to the latest statistics issued by the International Air Transport Association (IATA) the airlines carried 8.56 lakhs passengers during 1985. The only other airlines outside the US which carried more passengers than IA is the Japan Airlines. In May 1986 on an average IA flew 28,636 passengers daily, the highest number so far.

Indian Airlines domestic network of 81,926 unduplicated route kilometres has also been adjudged as the second largest among the non-US IATA carriers. The Indian Airlines domestic revenue tonne kilometres (RTKMS) performed in 1985 with a growth rate of 10.2 per cent has also been adjudged as the third largest growth rate achieved among the top 10 IATA domestic airlines.

** ** **

The world's airlines will be carrying about two billion passengers a year by the turn of the century, and it will cost tens of billions of dollars to cope with the "significant pressures" that will result, Jane's Airport Equipment said in its sixth edition.

Last year, the 1987-88 edition reported, airlines in the 157 member nations of the International Civil Aviation Organization carried a record 950 million passengers on scheduled flights, an increase of 6 per cent over 1985. It estimated that $90 billion would be spent between now and 2000 to cope with growing air traffic.

At least 4,000 aircraft, including 1,800 for replacement, will be needed by the 144 members of the international Air Transport Association (IATA) by the mid-1990s.

The association's director-general, Mr. Gunter O. Eser, disclosed this at the 42nd annual general meeting of the association held at Montreux in Switzerland.

of major rivers, which are navigable by mechanized craft, but only 1,700 km are actually utilized. As regards canals, the avaialble length is 4,300 km but only a length of 485 km is suitable for mechanized craft, of which only 331 km are being actually used.

Important among the navigable rivers are the Ganga, the Brahmaputra and their tributaries; the Godavari, the Krishna, the Mahanadi, the Narmada, the Tapti and their canals; the backwaters and canals of Kerala; the Buckingham canal in Andhra Pradesh and Tamil Nadu, the Cumbarjua canal and the Mandovi and the Zuari rivers in Goa and the network of tidal rivers in the Sunderbans.

The Inland Waterways Authority of India was established in 1985 for the development of a national inland waterways system.

There are 11 major ports in India. In addition 139 minor working ports (out of a total of 226 minor ones) are also scattered along the coastline of about 6,000 km. Major ports: West Coast—Kandla, Bombay, Mormugao, New Mangalore and Cochin. (A new major port at Nhava Sheva off Bombay is fast developing). East coast—Tuticorin, Madras, Vishakhapatnam, Pardip and Calcutta—Haldia.

Civil Aviation: As on 31 December 1985, there are 739 civil aircrafts in the country (including 110 gliders) with current certificate of registration, out of which 275 have current certificate of airworthiness. During 1985, Indian registered aircrafts carried 1.0824 crore passengers on their scheduled services.

Air India, the country's flag carrier made a net profit of Rs. 66.00 crore in 1985-86. Air India carried 173,349 passengers during this period. It has nine Boeing 747-200 aircraft, three Airbus A300-B4 and five airbus A310-300 in its fleet. During 1986 five Boeing 707 aircraft have been phased out.

Indian Airlines made a net profit of 63.22 crore in 1985-86. It carried 9.210 million passengers in 1985-86.

IA fleet of 50 aircrafts comprises 11 Airbus (includes one on lease), 27 Boeing-737 (includes 2 on lease), 7 HS-748 and 5 F27 (includes 2 leased to Coast Guards).

75 YEARS OF INDIAN CINEMA

The development of India's film industry is as old and as exciting as the history of the medium itself. The touring agents of the famous Lumiere Brothers of France (Auguste and Louis) demonstrated the new invention in Bombay on 7th July 1896 at Watson's Hotel in the Esplanade Mansion. It was barely six months after the "marvel of the century" took the Paris audiences by storm. The Indian preview show was a thundering success and it consisted of six little films—'Entry of the Cinematograph', 'Arrival of a train', 'The Sea bath', 'A demolition', 'Leaving the factory', 'Ladies and soldiers on wheels'. Later Calcutta was introduced to moving pictures towards the end of 1896 and Madras the following year.

The first Indian to make a film was *Harischandra Sakharam Bhatwadekar* (known popularly as Save Dada). He made short films like 'the wresters', 'Man and Monkey' in 1899. Save Dada also covered the Delhi Durbar of 1903 celebrating the coronation of Edward VII. Hiralal Sen and F. B. Thanawalla were two other Indian pioneers engaged in the production of short films in Calcutta and Bomaby respectively in the middle of 1900. Hiralal filmed extracts from renowned plays like Alibaba, Buddha, Sitaram, Sarala etc.

Around 1902 Jamshedji Framjee Madan and Abdullaly Esoofally launched their career with bioscope shows in Calcutta and Bombay. They exhibited imported short films like 'The Queen's Funeral Procession', 'Assassination of President McKinley', 'The Noah's Ark' etc. With the rise of the exhibitor-magnates like Madan, short story films started trickling in from several foreign countries. These included 'Life of Christ', George Melies's 'Trip to Moon', 'Joan of Arc', Edwin Porter's 'Great train Robbery', 'Gulliver etc.

All this inspired an amateur dramatic club led by *R. G. Torney* and *N. G. Chitre* to attempt a story film based on a popular Hindu drama. The result was *'Pundalik'* released on May 18, 1912 at the Coronation Cinema in Bomaby. The film centred round a famous saint of Maharashtra and shown in a double programme coupled with a foreign film 'A Dead Man's Child', became India's first story film.

The first fully indigenous silent feature film *'Raja Harischandra'* made by *Dhundiraj Govind Phalke* (Dada Saheb Phalke) was released on May 3, 1913 at the same theatre. It had titles n Hindi and English and it ran for an unprecedented 23 days. 'Raja Harischandra' (3700 ft) was cent per cent Indian where as Pundalik' was half British in its make. Therefore Dada Saheb Phalke has been rightly acclaimed as the *'Father of Indian Cinema'*.

Phalke laid the foundation for the start of a regular feature film industry in the country. After the resounding success of 'Raja Harischandra', Phalke moved to Nasik, where he built a studio and produced 'Mohini Bhasmasur' and 'Satyavan Savitri'. In 1914, he visited London with his 3 films and they won all round praise from the British Press.

The outbreak of World War I plunged Phalke into extreme financial crisis. In 1917, he made a grand reappearance with the revised version of 'Raja Harischandra' and India's first big box office hit 'Lanka Dahan'. In the same year, Bengal saw the birth of its first feature *'Satyabadi Raja Harischandra'* made by J. F. Madan's Elphinstone Bioscope Company. It was followed by 'Vilwamangal' by yothish Banerjee in 1919.

In Madras the first feature film of South India was made by *R. Nataraja Mudaliar in 1919*. The film *'Keechaka Vadhom'*, produced under the banner Indian Film Company was also a mythological story.

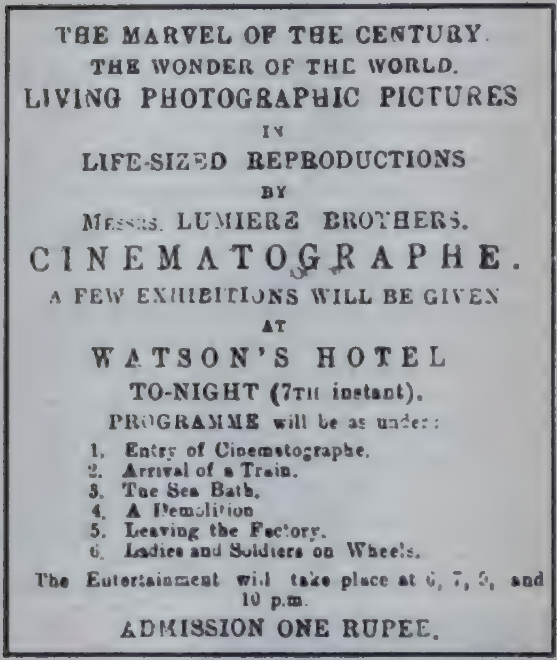
After stepping into 1920, the Indian Cinema gradually assumed the shape of a regular ndustry. This is most noticeable in the quantum of production. The industry also came within the purview of the law. The Indian Cinematograph Act had been passed in 1918, which provided for the licencing of cinema halls and censorship of Indian and imported films. The board of censors was set up province wise but they started functioning only from 1920.

The new decade saw the arrival of many new companies and film makers. In 1921, Dhiren Ganguly of Calcutta produced "England Returned", the first social satire film with a contemporary background. One of the most significant filmmakers of the decade was Baburao Painter who formed the Maharashtra Film Company at Kolhapur. Suchet Singh was another ambitious film maker. After foreign training he entered the film world by forming the Oriental Film Marketing Company and created a record by presenting an American actress, Dorothy Kingdom in his first film 'Sakuntala'. Among the new ones entering the fields in 1921-22 was Ardeshir Irani. His first film 'Veer Abhimanyu' was a spectacular in the Hollywood fashion. Another talent of great promise being nurtured in Painter's Maharashtra Company was V. Shantaram.

Two pillars of Indian cinema: Dada Saheb Phalke and Ardeshir Irani

In the 1925-26 period, there came a film, by which the Indian Cinema came to be widely known on an international level. It was the 'Light of Asia, made by Himansu Rai. Other significant silent films include Chandulal Shah's "Gunasundari", 'Educated Wife', Franz Osten's 'Shiraz' and 'A Throw of Dice'.

The Advent of Sound: The most remarkable thing about the birth of the sound film in India is that it came with a bang and quickly displaced the silent movies. The first Indian talkie 'Alam Ara' produced by the Imperial Film Company and directed by Ardeshir Irani was released on March 14, 1931 at the Majestic



THE MARVEL OF THE CENTURY.
THE WONDER OF THE WORLD.
LIVING PHOTOGRAPHIC PICTURES
IN
LIFE-SIZED REPRODUCTIONS
BY
MESSRS. LUMIERE BROTHERS.
CINEMATOGRAPHE.
A FEW EXHIBITIONS WILL BE GIVEN
AT
WATSON'S HOTEL
TO-NIGHT (7TH instant).
PROGRAMME will be as under:

1. Entry of Cinematographe.
2. Arrival of a Train.
3. The Sea Bath.
4. A Demolition
5. Leaving the Factory.
6. Ladies and Soldiers on Wheels.

The Entertainment will take place at 6, 7, 9, and 10 p.m.

ADMISSION ONE RUPEE.

The Marvel of the Century: A news paper advertisement on July 7, 1897.

Cinema in Bombay. The talkie had brought revolutionary changes in the whole set up of the industry.

In 1932, two great institutions were born namely Prabhat Film Company in Kolhapur and New Theatres Limited set up in Calcutta by B. N. Sircar. With the consolidation of the talkies by 1933 the Indian Cinema especially Hindi films, turned to contemporary themes. Eminent writers like K. M. Munshi, Mama Varekar, Munshi Premchand, Sarat Chatterji provided stories for films. In 1935, the play back system was introduced.

The year 1931 marked the beginning of the Talkie era in South India also. The first talkie pictures in Telugu and Tamil i.e. 'Bhaktha Prahlad' and 'Kalidoss' were released in the same year.

The thirties is recognized as the decade of social protest in the history of Indian Cinema. A number of films making a strong plea against social injustice were also made in this period like V. Shantaram's 'Duniya na Mane' and 'Aadmi' and 'Padosi', P. C. Barua's "Devadas" and "Mukti", Debaki Bose's "Vidyapati" and "Seeta" Nitin Bose's "Badi Bahen", Franz Osten's 'Achuth Kanya', V. Damle and Fathelal's 'Sant Thukaram', Mehboob's "Wattan', "Ek hi Raasta" and "Aurat". For the first time, Producer Ardeshir Irani attempted a colo
picture in 1937 with 'Kisan Kanya'. A year lat
another film 'Mother India' was also mad
The world war which broke out in 19
delayed the advent of colour by several yea

The forties also witnessed the production
a few remarkable films such as Shantaran
"Dr. Kotnis Ki Amar Kahani", "Kalpana"
Uday Shanker, 'Chandra Lekha' by S. S. Vasa
Chetan Anand's "Neecha Nagar", Abba
"Dharti Ke Lal", etc. In 1949, Sohrab Modi se
new standard in historical film with "Puka
He later made historicals like 'Sikandar' a
'Prithvi Vallabh'. Similarly Vijay Bhatt earn
plaudits for his two mythologicals "Bha
Milap" and "Ram Rajya".

New horizons were opened up by the fi
International Film Festival of India held
early 1952 at Bombay. For the first time, t
industry and the film goers saw what a vibr
cinema existed, outside Hollywood. Films li
'Bicycle Thieves', 'Yukiwarisoo' had
tremendous impact on Indian film make

The big turning point came in 1953 with t
arrival of Satyajit Ray and his classic 'Path
Panchali' which opened up a new path leadi
the Indian film to the world film scene, in
glorious and long lasting way. Internatio
recognition came to it with the Cannes aw
for "the best human document" followed
an unprecedented crop of foreign and nati
al awards.

In Hindi cinema also the impact of neore
ism was evident in some distinguished fil
like Bimal Roy's 'Do Bigha Zamin', Mehboo
'Aan' and 'Mother India', K. A. Abbas's 'Mun
and 'Rahi', Raj Kapoor's 'Awaara', 'Boot Poli
and 'Jagte Raho', V. Shantaram's 'Do Ankh
Barah Haath', Guru Dutt's 'Pyaasa' etc. Ap
from the production of these significant film
the fifties opened a vast world market
Indian films.

It must be also remembered that it was
the fifties that such films as 'Baiju Bawra', 'N
Daur', 'Devdas', 'Shree 420', 'Jhanak Jhan
Payal Baje', 'Sujata', 'Madhumati', 'Anari', '
noon' 'Kagaz ke Phool', etc. were made. T
first Indo-Soviet co-production "Paradesi"
also made by Abbas during the fifties.

Looking back one feels that the fifties
the most propitious decade in the history
Indian Cinema, especially Hindi cinema. In
sixties, with the untimely death of Mehbo
Bimal Roy and Guru Dutt, the Hindi cine

Play Back Singing: Fifty Glorious Years

The audio-visual impact of films, starting with the first Indian 'talkie' film 'Alam Ara' in 1931, gained fantastic new heights with the introduction of 'playback' singing, conclusively evident in 1936, when Saraswathi Devi, the music director of 'Achhut Kanya' recorded a song in her own voice 'Kit Gae Ho Kwewanhar' which was picturised on the actress Chandraprabha. That was 51 eventful years ago.

Since then many million feet of sound negative has been exposed to many thousands of hours of playback singing in Indian films. In the romantic saga of Indian film music—Hindi films in particular—one recalls with awe and reverence the unparallelled sway held by New Theatres in Calcutta and such maestros as K. L. Saigal, Pankaj Mullick, K. C. Dey and Kanan Devi and such music directors as R. C. Boral, Kamal Das Gupta and their likes who were darlings of a growing national audience.

Away to the far west, Lahore, the other active centre of film making was discovering the genius of music directors Ghulam Haidar, Pandit Amarnath, Pandit Govindram and others and singing sensations Shamshad Begum, Umrazia Begum, Zeenat Begum, S. D. Batish, Amar and many others.

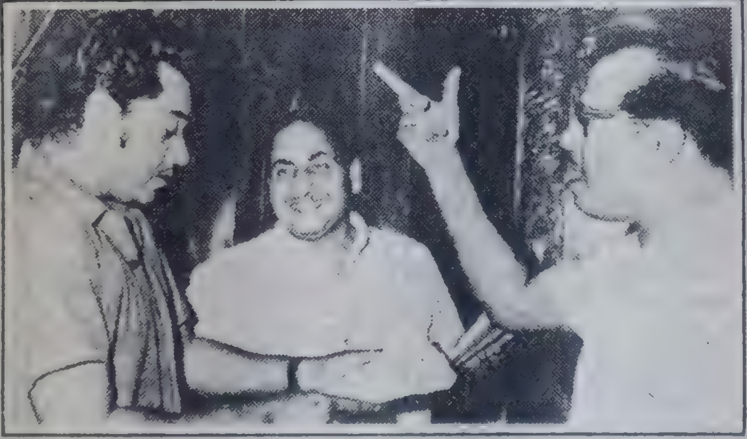
The scene in Bomaby then, was also acquiring shades of brilliance where Bombay Talkies were making their own star singers like Ashok Kumar, Devika Rani, Leela Chitnis, Snehprabha Pradhan and a few others were carrying audiences with their music. The variety of music produced in Bombay, however was much greater due to the cosmopolitan lot of music directors—thereby accelerating the progress of what came to be known as 'filmigeet'—employing the use of a large ensemble of Indian and Western instruments, synthesis of all forms of Indian music, creation of new metres and thus new patterns in rhythm.

To an already impressive opulence in the field of playback singing in films, the industry in Poona, particularly Prabhat Studios added liberally to the brilliance of such composers as Master Krishna Rao, Kesav Rao Bhole and Govind Rao Tembe and such voices as those of Rajkumari, Zohra Bai, Ameerbai Karnataki, Khan Mastana, G. M. Durrani, Hamida Bano, Naseem Aktar and others.

In the fifties and sixties there was a dazzling group of playback artistes like Hemant Kumar, Manna Dey, Mohammed Rafi, Talat Mahmood, Mukesh, Geeta Roy, Lata Mangeshkar, Kishore Kumar and Asha Bhosle. Each of them was a colossus with his or her own exclusive claim to immortality in the minds of millions of enthralled listeners in India and abroad. There were also such giants as Khemchand Prakash, Naushad, Anil Biswas, C. Ramachandra, S. D. Burman, Madan Mohan, Shanker Jai Kishan, O. P. Nayyar, Vasant Desai, Roshan, Salil Chowdhary, Jaidev and their likes and in later years Kalyanji Anandji, Laxmikant Pyarelal, R. D. Burman, Usha Khanna, Ravindra Jain and others in the field of composing music.

In the south also playback singing developed in an astonishing manner. Eminent singers from the south Indian screen include M. K. Thyagaraja Bhagavathar, Soundara Rajan, Seerkazhi Govindarajan, Ghantasala, P. B. Sreenivas, A. M. Raja, K. J. Yesudas, P. Susila, S. Janaki, Jayachandran, S. P. Balasubramoniam, Vani Jayaram, Madhuri, Chithra and their likes. Among the leading south Indian composers K. V. Mahadevan, M. S. Viswanathan, Ilayaraja, G. Devarajan, V. Dakshina Moorthy, M. B. Sreenivasan, Shyam and Shanker Ganesh are more popular in the industry.

The influx of youth in all spheres of films is an on going process. The late seventies and eighties have seen the arrival of many new talents in the field of playback singing and music composing.



Music trios: Kishore Kumar, Mohamad Rafi and Manna Day. The Rs. one lakh Lata Mangeshkar Award was won by Manna Day in 1987.

suffered a set back. The transition to colour and the consequent preference for escapist entertainment and greater reliance on stars brought about a complete change in the film industry.

Yet it must be admitted that the sixtie began with a bang with the release of K. Asif' 'Mughal-E-Azam' which set a new record at th box office. It was followed by Rajkapoor's 'Ji Desh Mein Ganga Behti Hai', and Dili

Government Support to Cinema

The Film Institute of India *was established in 1960 at Pune, by the Government of India, with the object of imparting technical training in a systematic manner in the art and craft of film making. In 1971 it was renamed the* Film and Television Institute of India *with extension of its sphere of activities to provide training in Television. On October 1, 1974 the Institute became a society registered under the Registration of Societies Act of 1860.*

The Film Wing offers courses leading to Diploma in Cinema with specialization in areas like direction, cinematography, editing, sound recording and sound engineering. Noted Malayalam film maker Adoor Gopalakrishnan is the present President/Chairman of the FTII Society/Governing Council.

National Film Archive of India: *National Film Archive of India (NFAI) with headquarters at Pune is a pioneer institution set up in 1964 with the objectives of acquisition and preservation of National Cinema, film classification, documentation and reserach encouraging film technology and spread of film culture in the country. The Archive has a collection of more than 6500 films from all over the world and it is constantly growing. The Archive also maintains a library consisting of film books, periodicals and other materials related to film. NFAI has started regional offices at Calcutta, Bangalore and Trivandrum which provide useful service to film societies and film study groups in the respective regions. Shri P. K. Nair is the Director of the National Film Archive of India. The NFAI and the FTII jointly conduct Film Appreciation courses for teachers, journalists, media officers and film society workers since 1975.*

National Film Development Corporation: *The Government of India set up the Film Finance Corporation (FFC) in 1960 to promote the production of good cinema. In 1975 FFC was merged with the Indian Motion Picture Export Corporation (IMPEC) and is now known as National Film Development Corporation (NFDC). The FFC and NFDC have financed nearly 150 feature films so far. NFDC also plays an important role in the import of foreign films and in the export of Indian films. It has also started its own distribution network of imported commercial films. There is again a scheme for financing the construction of theatres by private entrepreneurs. Noted film director Shri Hrishikesh Mukherji is the present chairman of the National Film Development Corporation.*

Directorate of Film Festivals: *The Government of India provides sufficient funds to the Directorate of Film Festivals to organize International Film Festivals in India every year. It also arranges for the selection and entry of Indian films to film festivals held in other countries. The Directorate organizes the National Film Awards annually.*

Children's Film Society: *The Society was formed in 1955. It produces feature films and short films for children. It organizes subsidized shows and distributes film prints. The Society also organizes an International children's film festival held every other year in India.*

Films Division: *Indian Films Division is perhaps the world's largest single producer and distributor of news reels and documentaries. It is functioning under the Ministry of Information and Broadcasting. The Films Division was first set up in 1948.*

umar's 'Gunga Jamuna'. B. R. Chopra's 'Waqt', j Kapoor's 'Sangam', Dev Anand's 'Guide', etan Anand's 'Haqueequat', Pramod Chakra-rthy's 'Love in Tokyo', Devendra Goel's 'Ek ool Do Mali', Ramanand Sagar's 'Arzoo' and nkhen' Sakthi Samantha's 'Aradhana', Raj osla's 'Do Raaste', Guru Dutt's 'Sahib Bibi r Gulam', Manoj Kumar's 'Upkar', O. P. lhan's 'Phool aur Pathar' were other signifi-nt hits of the decade.

The seventies has further widened the gap etween multistar big-budgeted commercial ock busters and small-budgeted off beat ms. The popular Hindi hits of the decade clude 'Johny Mera Naam', 'Haathi Mere athi', 'Mera Gaon Mera Desh', 'Pakeeza', obby', 'Abhiman', 'Jugnu', 'Zanjeer', 'Victoria 03', 'Seeta aur Geeta', 'Sholay', 'Muquaddar a Sikandar', 'Deewar', 'Khoon Pasina', Mr. atwarlal, 'Hera Pheri', 'Yadon Ki Baarat', 'Hum sise Kum Nahin', 'Kabhie Kabhie', 'Shor', oti Kapada aur Makan', 'Dharam Veer', 'Amar bar Antony'. Of these, majority of the films ere action oriented with revenge as the ominating theme.

ew Cinema and Regional Cinema: The nergence of the 'New Indian Cinema' in the e sixties as a recognizable movement was rtly a reaction to the popular cinema's "other worldliness". It is a cinema of social significance and artistic sincerity, presenting a modern, humanist perspective more durable than the fantasy world of the popular cinema. The new cinema is "regional" in the sense that it speaks in terms of recognizable situation, gives its characters a social identity and deals with situations close to life. In production too, it follows a pattern different from the popular cinema.

Satyajit Ray, Mrinal Sen and Ritwik Ghatak were the founding fathers of the New Cinema in India. Ray had a special vision of the Indian reality—hard, implacable, piercing to the heart of the matter in an unbearably truthful yet moving fashion. He has hitherto made 25 full length feature films and a few documentaries. The awards won by Ray's films are too numerous. Pather Panchali, Aparajito, Apur Sansar, Charulata, Devi, Goopy Gyne Bagha Byne, Seemabadha, Ashani Sanket, Jana Aranya etc. are some of his outstanding films.

Mrinal Sen is the ebullient one—experimenting with neorealism as well as new wave and fantasy. His notable films are Bhuvan Shome, Chorus, Mrigaya, Ek Din Pratidin, Akaler Sandhane and Genesis. Like Ray, Mrinal Sen also has won several awards both national and international. Ritwik Ghatak in a sense is

Satyajit Ray and Sharmila Tagore on the set of *Aranyer Din Ratri*.

Hollywood is 100

Hollywood threw a bash for its 100th birthday with a shower of champagne, 1.5 metre—high birthday cake and the unveiling of a plexiglass time capsule that celebrities filled on 1 February, 1987 with film land memorabilia.

A special star honouring the late Natalie Wood was implanted in the Hollywood walk of fame just outside the recently renovated Roosevelt Hotel, scene of the first academy award ceremonies in 1927.

About 500 fans blocked Hollywood boulevard to get a glimpse of Wood's widower, Robert Wagner, and their daughters, Kate, Courtney and Natasha.

At the birthday party inside the hotel a few minutes later, Mr. Wagner placed a replica of the sidewalk star inside the time capsule, which will remain above ground and be displayed at a location not yet disclosed.

Cowboy star Gene Autry put a piece of the old "Hollywood" sign into the time capsule, and actor James Stewart added a letter from President Reagan.

Actor Buddy Rogers, widower of Mary Pickford, donated a cassette of the film "Wings", which won the first Oscar 60 years ago and starred Pickford.

Rogers recalled attending the Oscar ceremonies in the very same room, with Clara Bow and Gary Cooper sitting nearby. Bob Hope placed an Oscar into the capsule. The party began a year-long celebration of Hollywood's centennial.

The film capital traces its history to the purchase of a 120-acre ranch by a Kansas prohibitionist named Harvey Wilcox, whose wife decided to name the property after the summer home of a Chicago acquaintance.

On Feb. 1, 1887, Wilcox registered the name "Hollywood" with the Los Angeles city recorder.

the most disturbing figure. His films constitute a record of the traumas of change—from the desperation of the rootless and deprived refugees from East Bengal. (Meghe Dhaka Tara, Komal Gandhar, Subarnarekha).

A whole new group of film makers emerged on the Bengal scene. Notable among them were Tapan Sinha, Tarum Majumdar, Purnendu Pattrea & Buddhadeb Dasgupta. They continued the breakaway tradition of Ray and made some significant contributions in their own individual styles.

In Bombay, from the 'new cinema' group there came Basu Chatterji's "Sara Akash", Rajinder Singh Bedi's "Dastak", Mani Kaul's "Uski Roti", "Ashad ka Ek Din" and "Duvidha", Kumar Shahani's "Maya Darpan", Awtar Kaul's "27 Down", Basu Bhattacharya's "Anubhav" and "Aavishkar", M. S. Sathyu's "Garam Hawa" etc. Shyam Benegal's advent with "Ankur" has been a significant event of seventies. He has since made notable films like "Manthan", "Nishant", "Bhumika", "Junoon", "Kalyug", "Trikal" etc.

The south gained its first recognition as a centre for serious cinema with the Malayalam 'Chemmeen' (1965) by the late Ramu Kariat. In the seventies the film makers of Karnataka ar Kerala raised the banner of the New Cinema the South, so distinctively that the New Cinen became identified with regional cinema. P tabhi Rama Reddy's 'Samskara' (1970) ar Adoor Gopalakrishnan's 'Swayamvara (1972) were the trend setters in Kannada ar Malayalam respectively. This trend continu with a series of socially conscious and releva films—outstanding among them being. M. Vasudevan Nair's "Nirmalyam" (1973), B. Karanth's 'Chomana Dudi', G. Aravindar 'Utharayanam' and 'Thamp', Girish Karna 'Kaadu", Girish Kasaravalli's 'Ghattasradh Adoor Gopalakrishnan's 'Kodiyettam', P. Backer's "Chuvanna Vithukal" and K. George's 'Swapnadanam'.

The artistic—supremacy of the region cinema reached its peak in the seventies wi the arrival of bright young talents from t film schools at Pune and Madras who took cinema as a challenging medium and made positive contribution—along with the supp of an intelligent minority audience thrown by the active film society movement in t south.

The active good cinema movement in K

Indian Cinema: Fantasy Factory

The seats in the Shiela Theater in New Delhi are filled, all eyes riveted on the wide screen as the movie "Deewar" begins. A mob of swarthy gangsters has just arrived on the docks, brandishing knives and bicyle chains, demanding a fistful of every stevedore's meager wages. But the hoods are no match for Vijay, the film's lead character, played by the reigning macho man of Indian cinema, Amitabh Bachchan. When he is attacked by the young toughs, the quiet dockworker is transformed into a furious fighting machine of wicked left hooks and devastating roundhouse kicks. By the scene's end, Vijay has the gangsters fleeing for their lives – and the audience on its feet, screaming for their hero.

The crowds flock to India's theaters, 75 million a day, lured by the images of the largest dream factory in the world. India churns out nearly 1,000 films every year, most of them a bountiful if unwieldy mix of song and dance, brawls and chases, domestic melodrama and chaste romance. For India's largely poor moviegoers, the cinema offers more than just escape from the drudgery of their lives; films like "Deewar" offer the comforting illusion of instant justice. For both those reasons, the cinema is a national obsession. It has spawned scores of movie magazines and fan clubs. Government officials are eager to hobnob with film stars; thanks to an adoring public, a handful of stars have become prominent politicians. Nowwhere, infact, do moviegoers identify as closely with the tales of the cinema as in India.

The country's film industry serves up more to the public than just myth and fantasy. In recent years the local movie capitals in Bombay, Madras and Calcutta have begun producing new-wave movies that explore contemporary social and political issues. Films like "Half Truth" and "Seedling" have dealt with such themes as police brutality and the degradation of India's indentured labourers. Such films have been box-office successes, thanks in part to the fact that they feature some of India's hottest stars in leading roles. Actress Hema Malini, who has been dubbed "the Marilyn Monroe of India" for her sultry looks and sometimes steamy film roles, has starrea in several movies about the travails of women in traditional Hindu society, including the hardships of India's archaic dowry system.

blockbuster epics, and their charismatic superstars that seem to have thoroughly mesmerized the country's moviegoers – and their adulation often extends far beyond the realm of filmdom. Several matinee idols, including N.T. Rama Rao, who is now chief minister of Andhra Pradesh and M. G. Ramachandran, chief minister of Tamil Nadu, have been catapulted into politics by loyal fans. No one has achieved more prominence than Amitabh Bachchan. He has starred in 80 films over the past decade, playing everything from Clint Eastwood-style heroes to brooding, sensitive characters reminiscent of Marlon Brando. His screen persona was apparently so convincing that residents in his home town of Allahabad, in northern Uttar Pradesh, elected him in a landslide victory to a parliamentary seat in 1984.

But his dubious career in government has sputtered to an ignominious end. Amid allegations that he violated foreign currency laws by secretly stashing millions of dollars in Swiss banks, Bachchan resigned from Parliament. Even that scandal seems unlikely to crimp his career on celluloid. Bachchan is already back at work on three of his unfinished films, and now has contracts for another 15 movies. When they are released in India's theaters, his fans are sure to be screaming as loud as ever. . . . . (News Week) nataka has suffered a severe set back of late, with a number of completed off beat films remaining in the cans and awaiting distributors and exhibitors. The Hindi Avante garde or new wave seems to have reached its bloom period towards the end of the seventies with the coming of film makers like Govind Nihlani (Aakrosh), Saeed Mirza (Albert Pinto ko Gussa Kyon Aatha Hai), Sai Paranjpe (Sparsh), Rabindra Dharmaraj (Chakra), Musaffar Ali (Gaman) and Biplab Roy Chowdhary (Shodh). The movement spread to the other regional cinema such as Marathi, Gujarathi & Telugu also. Directors like Jabbar Patel, Ramdas Phuttane, Ketan Mehta and Gautam Ghose came to the scene with their films.

Far in the south also film makers such as K. Balachander, John Abraham, Bharathi Raja, Bharathan, Padmarajan, K. R. Mohanan and a few others presented some significant films. The 'new wave' masters Adoor and Aravindan remained in the field with films like Elippathayam, Mukhamukham, Esthappan, Pokkuveyil and of late Chidambaram and Oridath. Adoor's latest film 'Anantharam', Pavithran's 'Uppu' and Mohanan's 'Purushartham' are significant films of the Malayalam cinema in the year 1987. Aparna Sen, Nirad Mohapatra and Prakash Jha are among the few new film makers who became popular with their films like 36 Chowrighee Lane, Parama, Maya Mriga and Damul.

The main bulk of Indian cinema still remains far from reality, topicality and genuine cinematic art, whether with or without social purpose. The huge glossy dazzling frame is there, but the soul is missing. The m audience mind remains equally dormant a unresponsive to change. The future hope Indian cinema lies as much with a grad change in the mass mind.

Largest Film Producer

India is the largest producer of films ir the world. During 1985, 912 feature film were certified by the Central Board of Film Certificates for public exhibition. Of these 892 were in colour and 20 in B & W (However the 1986 figure has come dowr with a total production of 840 films)

Language Films produced	*1984*	*198*
Telugu	*170*	*19*
Hindi	*165*	*18*
Malayalam	*121*	*13*
Oriya	*14*	*1*
Marathi	*10*	*1*
Hariyanvi	*4*	*1*
Assamese	*5*	*1*
Bhojpuri	*1*	
Nepali	*1*	
Rajasthani	*2*	
Urdu	*1*	

There are 12,700 public cinema halls i the country. It is estimated that about 10 million people see films in a week.

PRESS, TV AND RADIO

The Indian print media consists of 36 centenarians. The Gujarati daily *Bombay Samachar* published from Bombay is the oldest existing newspaper. It was established in 1822. During 1984 Hindi dailies dominated in terms of numbers but in single unit circulation two Bengali dailies — Ananda Bazar Patrika and Jugantar — dominated.

At the end of 1984, the total number of news papers in the country was 21,784 as compared to 20,758 in 1983, an increase of 4.9 per cent. Amog them, 1609 were dailies, 111 tri/bi-weeklies, 6469 weeklies and 13595 other periodicals.

News papers were published from all states and union territories except from A nachal Pradesh and Lakshadweep. U Pradesh claimed the top position with 3, news papers published from the state. It followed by Delhi (2,772), Maharashtra (2,7 and West Bengal (2,378). More than thousand new papers came out from Ta Nadu (1,328), Rajasthan (1,210), And Pradesh (1,198) and Kerala (1,112).

News papers were broughtout in 92 guages. Apart from the 16 principal lanag news papers were published in 76 o languages, and a few foreign languages.

ighest number was in Hindi (6,370) followed y English (3,961).

Number of News Papers

nguage	Dailies	Weeklies
indi	554	2900
nglish	138	440
ssamese	3	28
engali	52	433
ujarati	41	177
annada	93	173
ashmiri	—	1
alayalam	118	125
arathi	132	391
riya	17	42
unjabi	29	192
anskrit	2	4
indhi	7	22
amil	113	134
elugu	42	167
rdu	182	723
ilingual	35	382
ultilingual	9	68
thers	42	67
otal	1609	6469

India has 4 news agencies – Press Trust of ndia (PTI), United News of India (UNI), amachar Bharati and Hindustan Samachar.

PTI was set up on 27 August 1947. It took ver from the Associated Press of India (API) nd Reuters. It has 124 news bureaux in the ountry including computerised offices in the our metropolitan cities.

UNI was registered as a company in 1954 nd started news operation in 1961. In 1982 it aunched its Hindi news ervices 'UNIVARTA'. It perates a news service to the media in four ulf countries.

Under the Press Council Act, 1978, the first *ress Council of India* was constituted in 1979, e second in February 1982 and the third in ly 1985. It is meant to safeguard freedom of ress, maintain and improve the standard of ews papers and news agencies.

Television: TV was introduced in India in eptember, 1959 with the establishment of a entre at Delhi as a pilot project. Over the ears, it acquired its Indian name *Doordar-* *an* and expanded its reach and area of tivities in the spheres of information, education and entertainment.

During 1986-87 thirteen transmitters were commissioned raising the total in the country to 192. Five more are scheduled to be commissioned immediately. Second channels in Madras and Calcutta are scheduled to be commissioned during 1987-88.

Srinagar, Jalandhar, Lucknow, Calcutta, Madras, Bangalore, Bombay and Delhi are already linked on microwave system for simultaneously receiving and telecasting TV signal. It is now proposed to link Hyderabad and Trivandrum also.

INSAT multiple service project has been made use of by Doordarshan for direct telecast of the programme and for the national networking of the existing terrestial transmitters through the use of microwave system. Telecasts of higher education programmes which commenced on August 15, 1984, via INSAT-1B continue successfully.

On August 15, 1984, a daily national programme of 90 minutes for a simultaneous telecast throughout the country was introduced. The programme is currently telecast for a minimum of 155 minutes daily from 8.40 p.m. to 11.15 p.m. 1987 saw the introduction of daily morning telecast from 7.30 to 8.15.

The commercial service of Doordarshan made a modest beginning in January, 1986. The service has been extended through more Kendras resulting in substantial increase in revenues as is evident from the following figures.

1982–83	Rs.15.89 crores
1983–84	Rs.19.79 crores
1984–85	Rs.31.43 crores
1985–86	Rs.60.20 crores
1986–87	Rs.80.53 crores

(upto January 1987)

The revenue in 1987 alone is expected to be around Rs.200 crores.

T.V. Sets: The first indigenous Black and White TV receiver was produced in India in 1969. From a production level of a few thousand sets in 1970, the industry has grown to produce 3 million sets in 1986. Of this 2,150,000 are black and white and 900,000 colour.

It is estimated that at the end of 1987 India will have 13.5 million TV sets. This is expected to go up to 29.2 million by 1990 and 45.6 million by 1992.

Radio: Broadcasting in India started in

Centenarians Ahoy!

One of the best-loved newspapers in the world the International Herald Tribune' *celebrated its centenary in 1987. It is edited and published in Paris and printed simultaneously in ten centres around the globe – Paris, London, Zurich, Hong Kong, Singapore, The Hague, Marseille, Miami Rome, and Tokyo.*

Called a 'global newspaper' reaching 164 countries the IHT has a circulation of 2,70,000 on an average day and 3,30,000 for the weekend edition.

Founded by James Gordon Bennett, Jr., the IHT is now jointly owned by Whitney Communications, The New York Times and The Washington Post Company. It culls the top stories from some of America's best dailies and adds a sprinkling of articles from its own correspondents. As the editors and compositors complete their work in Paris each evening, an electronic image of each page is sent to each of the printing sites at a speed of a page in four minutes. To reach Miami, the signal is relayed by an Intelsat V-A communication satellite 37300 km above the Atlantic ocean to the earth station at the Miami plant.

India is not lagging behind. According to official estimate, Indian Press has 36 centenarians, the oldest being Bombay Samachar, *a Gujarati daily published from Bombay since 1822*

The Global Newspaper
Edited and Published in Paris

INTERNATIONAL Herald Tribune

Published With The New York Times and The Washington Post

SINGAPORE, SATURDAY-SUNDAY, NOVEMBER 21-22, 1987

No. 32,578

ESTABLISHED 1887

U.S., Soviets To Exchange Test-Site Visits

Reagan Meets With Shamir at the White House

Prime Minister Yitzhak Shamir of Israel met Friday with President Ronald Reagan in Washington. After the meeting, a U.S. official said there were no plans for Arab-Israeli talks at the U.S.-Soviet summit meeting next month. World Briefs, Page 2.

U.S. Bargainers Agree on Plan to Reduce Deficit

But Approval By Congress Is Uncertain

Jim Wright

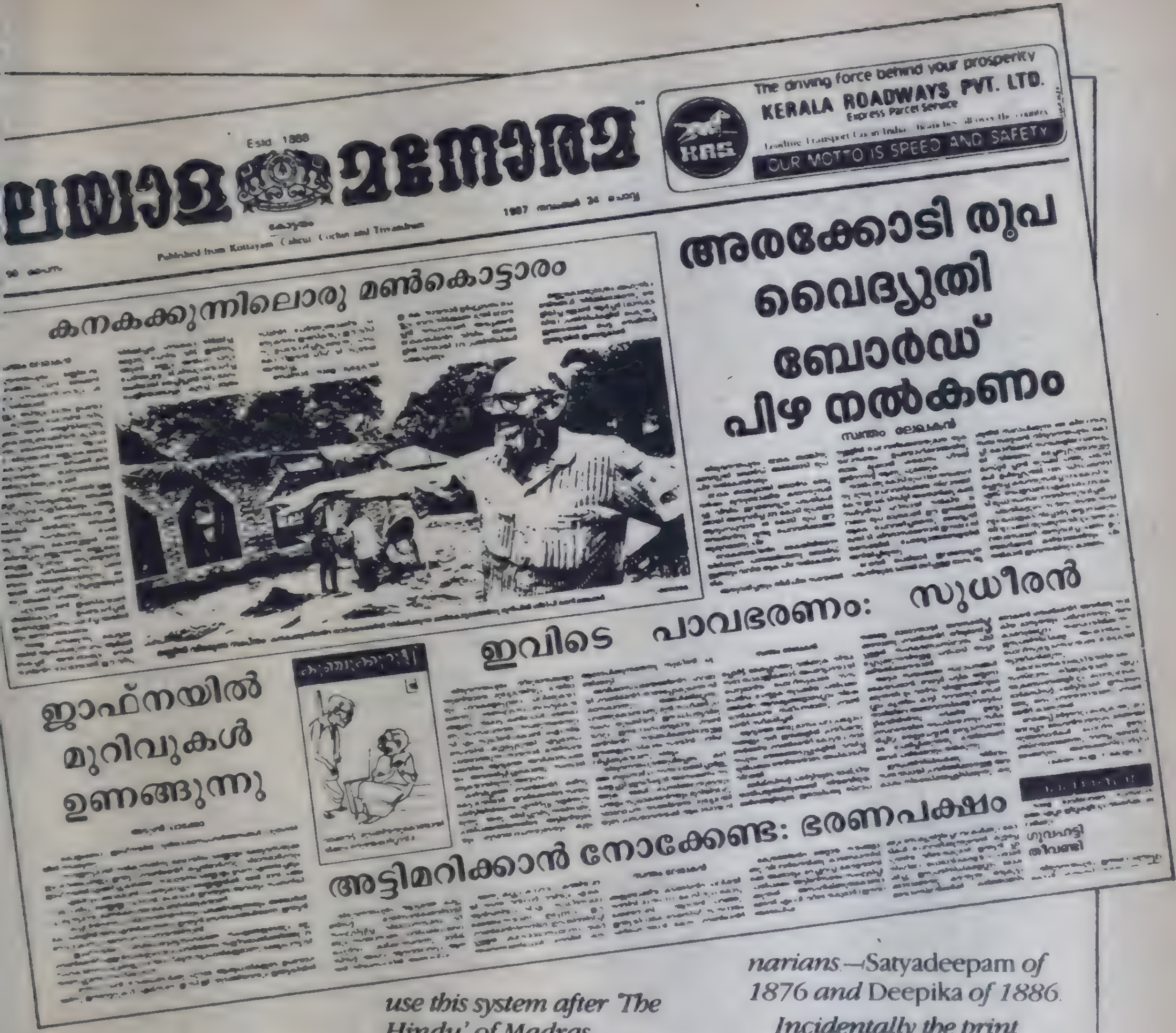
Dow Rises But Shares End Mixed

Contras Reject Sandinist Cease-Fire Plan

By James LeMoyne

Kiosk

Cuba to Retake 'Undesirables'



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അരക്കോടി രൂപ വൈദ്യുതി ബോർഡ് പിഴ നൽകണം

ഇവിടെ പാവഭരണം: സുധീരൻ

ജാഫ്നയിൽ മുറിവുകൾ ഉണങ്ങുന്നു

അട്ടിമറിക്കാൻ നോക്കേണ്ട: ഭരണപക്ഷം

Among the centenarins are such stalwarts as The Times of India, The Hindu, The Statesman *and the* Amrita Bazar Patrika. Malayala Manorama, *publishers of* Manorama Year Book, *joins this select band in 1988.*

Founded by Kandathil Varghese Mappillai, Malayala Manorama is now published simultaneously from four centres – Kottayam, Calicut, Cochin and Trivandrum. The latest unit in Trivandrum receives page-images by facsimile transmission. Malayala Manorama is the second newspaper in the country to use this system after 'The Hindu' of Madras.

Malayala Manorama strides into the centenary year with many proud achievements, the greatest being the highest circulation in India. According to the ABC report for January–June 1987, it has a daily paid sale of 6,30,068 copies (Circulation on Nov. 1, 1987: 6,51,568).

Double that of the International Herald Tribue! And it too reaches all corners of the globe, wherever there are Malayalees.

Kerala has two more centenarians.—Satyadeepam *of 1876 and* Deepika *of 1886.*

Incidentally the print order of Manorama Year Book 1988 is 1,00,000 – highest by any publication of its kind in India.

Now some world statistics: *Oldest Newspaper:* Post Och Inrikes Tidningar, Sweden. Founded in 1645. *Largest Daily:* New York Times of Sunday 17 Oct 1965 (946 pages). *Highest Circulation:* Yomiuri Shimbun, Japan (1,41,34,187 on 1st April 1986). ●

Phones: Global Reach Grows

Telecommunication in India made a big leap during 1987 when International Subscriber Dialling (ISD) was opened to 150 countries around the globe. The inauguration of the India – UAE submarine cable system in November was another boon for those who wanted direct access to the Gulf.

All the 360 centres in India with Subscriber Trunk Dialling (STD) facility have now been provided with ISD facility.

Another 339 centres will be provided these facilities during the Seventh Plan.

According to the annual report of the Department of Telecommunicaitons for 1986-87, all the cities (216) and towns (3029) in the country as per 1981 census have access to the telephone network through telephone exchange. Out of 575,936 villages as per the 1981 census about 8877 are served by exchanges and 22,201 by long distance (more than 5 km) public telephones.

The registered demand for telephone connection reached 41.51 lakhs during 1986-87. A total of 774 new exchanges were commissioned during 1986-87 raising the total number of departmental echanges to 11,482. The equipment capacity of echanges rose to 31.66 lakhs. Waiting list: 9.86 lakhs.

Telex subscribers in the country total 30,515. Subscribers in 179 countries of the world are accessible to them.

As on 31-3-86 there were in all 1,44,396 post offices in the country. Of these 1,28,810 were in rural areas and 15,586 in urban areas. The average area served by a post office was 22.76 sq km and the average population served was 4745 (based on 1981 census).

In the year 1985-86 the postal services handled nearly 1211 crore pieces of mail, excluding money order. The total number of registered articles handled was 3042 lakhs.

Nearly 1238 lakh inland money order of a total value of Rs.2013 crore were issued, the commission realized thus being Rs.55.2 crores. The total value of postal orders. issued was Rs.22.79 crores represented by 243.9 lakh postal orders.

During 1985-86 thirty-eight special commemorative stamps were issued.

1927 with two privately owned trnsmitters in Bombay and Calcutta. The government took them over in 1930 to establish Indian Broadcasting Service. The name was changed to All India Radio (AIR) in 1936 and since 1957 it is known as Akashvani.

Akashvani today has 98 radio stations, 142 MW transmitters with 8,245 kW power, 40 SW transmitters with 3,865 kW power and 4 VHF (FM) transmitters with 60 kW (ERP) power. This will cover 95 per cent population and 86 per cent of the area of the country.

The Seventh Plan (1985-90) of the AIR is under implementation. With the completion of this plan, the country will have 205 broadcasting stations, 150 MW transmitters with total power of 10,856 kW, 54 SW transmitters with total powers of 7,293 kW and 104 FM transmitters with the total ERP power of 3,270 kW.

The News Services Division broadcasts
ery day 273 news bulletins for a durshan
over 36 horus in its home, external a
regional services. In the home service fr
Delhi, 81 bulletins are put out in 19 langua
for a duration of over 11 hours. The exter
services broadcast daily programmes for
hours and 35 minutes in 24 languages.

The *Vividh Bharati Service* provides en
tainment to listeners. Two high power sh
wave transmitters in Madras and Bombay ca
the transmissions. There are 29 *Commer*
Broadcasting centres. Ten percent of the t
broadcasting time is alloted for advertisem
Gross income earned for the last 5 ye
1982-83: Rs.15.51 crores, 1983-84 Rs.1
crores, 1984-85: Rs.15.69 crores, 1985
Rs.19.82 crores, 1986-87 (upto January 19
Rs.20.23 crores.

Milestones in Communication

35,000 B.C. Cro-Magnon period; speculation that language existed.
22,000 B.C. Pre-historic cave paintings.
4,000 B.C. Sumerian writing on Clay Tablets.
3,000 B.C. Early Egyptian hieroglyphics.
2,000 B.C. Mohanjo Daro and Harappan script and seals.
1,800 B.C. Phoenician alphabet.
1,000 B.C. Early Greek Script.
600 B.C. Earliest Latin inscriptions.
450 B.C. Carrier Pegions used by the Greeks.
130 B.C. Library of Alexandria built.
350 A.D. Books replace scrolls.
600 A.D. Book printing in China.
676 A.D. Paper and ink used by Arabs and Persians.
1,200 A.D. Paper and ink art in Europe.
1,453 A.D. Gutenberg Bible printed.
1,562 A.D. First monthly newspaper in Italy.
1,594 A.D. First magazine in Germany.
1,639 A.D. First printing machine in North America.
1,642 A.D. Early adding machine developed by Blaise Pascal.
1,709 A.D. Copy-right law in England.
1,791 A.D. First Amendment to the US Constitution.
1,819 A.D. Flat-bed press invented by David Napier.
1,827 A.D. Photographs on metal plates.
1,830 A.D. "Analytic Engine" (Computer) principles; Charles Babbage.
1,835 A.D. Samuel Morse introduced the Telegraph.
1,846 A.D. Sightening Press; high speed printing.
1,855 A.D. Printing telegraphs, David Hughes.
1,866 A.D. Translantic cable completed.
1,876 A.D. Telephone invented; Alexander Graham Bell.
1,888 A.D. Radio waves identified.
1,895 A.D. Radio telegraphy; Guglielmo Marconi.
1,895 A.D. Motion picture camera; Auguste and Louis Lumiere.
1,900 A.D. Speech transmitted via radio waves.
1,912 A.D. Motion picture a big business.
1,920 A.D. Home television speculated upon.
1,927 A.D. American Telephone and Telegraph Co demonstrates T.V.
1,936 A.D. Life magazine founded.
1,942 A.D. First Electronic computer in US.
1,946 A.D. Xerography invented; Chester Carlson.
1,947 A.D. Transistor invented; Bell Laboratories.
1,949 A.D. First stored programme computer.
1,951 A.D. Colour TV introduced in US.
1,957 A.D. Russia launches the first satellite-Sputnik.
1,958 A.D. Stereophonic recordings in U.S.
1,961 A.D. Push button telephones
1,962 A.D. Telestar satellite introduced.
1,968 A.D. Portable video recorders
1,970 A.D. Micro electronic chips coming into wide use.
1,975 A.D. Flat wall TV screen invented.
1,975 A.D. Fiber optic signal transmission now highly developed.
1,975 A.D. First wide marketing of TV computer games.
1,978 A.D. Video disc system test marketed.
1,979 A.D. 3-D TV demonstrated.
1,980 A.D. Home computer available for less than $ 500.
1,980 A.D. New breakthrough in space photography.
1,981 A.D. Space shuttle 'Columbia' has successful mission.
1,982 A.D. European consortium launches multiple satellites.
1,982 A.D. Major advances in implementation of mobile telephone.
1,986 A.D. Live transnational television beaming through multi-satellite network.

REACHING OUT TO SPACE

India's space programme has come of age. With the launching of her own satellites in her own vehicles and deploying her own communication satellites to geostationary orbit, India has earned a coveted place in the exclusive space club. Indians are joining the select band of space-travellers also.

The Indian Space programme is directed towards harnessing space technology in a self-reliant manner for:- (1). Satellite communications including direct TV broadcasting to community receivers. (2). Natural resources survey & management including environmental monitoring and meteorological forecasting. To achieve these ends, India is actively involved in developing and putting into operation a series of satellite and launch vehicle systems.

The Indian Space programme began with the setting up of a sounding rocket launching facility at Thumba, a fishing hamlet near Trivandurm in 1963. The Thumba Equatorial Rocket Launching Station (TERLS), which in 1968 was dedicated to the United Nations Organization, served as the nucleus for the growth of Indian Space Research Organization (ISRO), which today encompasses the following Centres.

(1) Vikram Sarabhai Space Centre (VSSC), Trivandrum; (2) SHAR Centre, Sriharikota; (3) ISRO Satellite Centre (ISAC), Bangalore; (4) Auxiliary Propulsion System Unit (APSU), Bangalore; (5) Space Applications Centre (SAC), Ahmedabad; (6) Development & Educational Communication Unit (DECU), Ahmedabad; and (7) ISRO Telemetry, Tracking & Command Network (ISTRAC) with its headquarters at Bangalore.

The Department of Space (DOS) located at Bangalore is responsible for the execution of India's Space activities through ISRO. The Physical Research Laboratory (PRL) at Ahmedabad, an institution supported mainly by DOS, conducts research in space and related sciences. The DOS-supported National Remote Sensing Agency (NRSA) at Hyderabad, is engaged in using remote sensing techniques for the survey and management of natural resources.

The Indian Space Programme took a major forward step with the launching of the fir indigenously built spacecraft, Aryabhata, i 1975. This 360-kg satellite, designed to acqui the basic expertise in satellite technology, wa placed into orbit from the Soviet Union by Soviet rocket carrier.

Aryabhata was followed by *Bhaskara–1*, a experimental earth observation satellite. Lau ched in 1979, Bhaskara–1 carried TV came and microwave radiometer payloads for Eart observation studies in hydrology, forestr snow melting and oceanography. An improve version of this satellite, Bhaskara-II, was lau ched in 1981. The Bhaskara Satellites we also launched by Soviet rocket carriers.

In the area of satellite communication, ISR conducted two largescale experiments r levant to India's communication needs. The were: (a) Satellite Instructional Televisio Experiment Project (SITE) during 1977–7 Under SITE, developmental programmes we telecast direct to community receivers in 2,40 villages, using the American satellite, ATS– Similarly, with the aid of the Franco-Germa 'Symphonie' spacecraft, a series of innovativ communication experiments were conducte under STEP.

Parallel to spacecraft technology, India too steps for building its own first satellite.laun vehicle, SLV–3. The four-stage, solid pro ellant SLV–3, during its three successful fligh in 1980, 1981 and 1983, orbited Indian–bu Rohini series satellites.

In June 1981, India's first experiment geostationary communications satellite, A PLE, was successfully launched aboard t European Space Agency's Ariane launch veh cle from Kourou in French Guyana. Duri this satellite's active in-orbit life of 27 month it was used to conduct a variety of advance satellite communication experiments. It al provided live TV coverage of selected nation events.

The successful launching of INSAT–IB, multi-purpose domestic satellite, on board t American Space Shuttle in 1983 , and operationalisation has given India the capab ity of country-wide domestic telecommunic tions, meteorology and direct community broadcasting.

India was to have launched INSAT-IC aboard America's Space Shuttle Challenger. But as the series was aborted due to a tragic mid-air explosion in early 1986, India has now contracted Ariane Space to launch it in June 1988.

The SLV–3 project provided India with the expertise for embarking on the development of larger and more sophisticated launch vehicles. Meanwhile the failure of an Augmented Satellite Launch Vehicle (ASLV) on 24 March, 1987 has dampened the spirits of Indian scientists a little. ASLV is meant to orbit 150-kg satellites into space. Polar Satellite Launch Vehicles (PSLV) capable of injecting 1000-kg class satellites into a polar sun-synchronous orbit are under development.

Another important project on hand is the Indian Remote Sensing Satellite (IRS) series. The first such satellite is scheduled to go into orbit in 1988 launched from the Soviet Union. The three–axis stabilised 850-kg IRS will carry payload to collect data on agriculture, forestry, hydrology, snow–melting and meteorology.

ISRO had developed and qualified a series of Sounding Rockets like RH–125, RH–200, Centure, RH–300, RH–560, etc., for meteorolo-

Milestones In Indian Space Programme

1962: *Indian National Committee for Space Research (INCOSPAR) formed by the Department of Atomic Energy.*

1963: *Thumba Equatorial Rocket Launching Station (TERLS) established in response to the longfelt need of scientists to make in-situ measurements of upper atmospheric parameters, particularly of equatorial electrojet.*

1965: *The Space Science & Technology Centre (SSTC) established in Thumba as a research and development laboratory in space technology for achieving self-reliance in this field.*

1967: *An earth station for satellite telecommunication set up at Ahmedabad to provide facilities for training and research in this technology. Engineers trained here help set up the first Indian commercial satellite telecommunication earth station at Arvi, near Pune.*

1968: *TERLS dedicated to the United Nations.*

1972–1976: *A number of air-borne remote sensing experiments conducted for surveying earth resources.*

1975: *The first Indian Satellite, Aryabhata, launched on April 19, 1975 from the Soviet Union.*

1975–1976: *The first major space application programme. Satellite Instructional Television Experiments (SITE), conducted during August 1975, July 1976 using the American Satellite, ATS–6.*

1977: *The Satellite Telecommunication Experiments Project (STEP) carried out from the middle of 1977 to 1979 using the Franco–German satellite, Symphonie.*

1979: *The Second Indian Satellite, Bhaskara, a satellite for Earth observations, Bhaskara, launched on 7th June 1979 from the Soviet Union.*

1980: *SLV–3, India's first Satellite Launch Vehicle, puts Rohini Satellite into a near–earth elliptical orbit from Sriharikota on 18th July, 1980.*

1981: *India's first experimental geostationary communication satellite, APPLE, successfully launched by ESA's Ariane Launch Vehicle from Kourou, French Guyana, on 19th June 1981. India's second satellite for Earth observation, Bhaskara–II, launched from the Soviet Union on 20th November, 1981.*

1983: *Second developmental flight of SLV–3 successfully conducted from Sriharikota on 17th April 1983 and RS–D–2 satellite orbited. INSAT–1B India's multipurpose domestic satellite, launched on board USA's Space shuttle, 'Challenger' on 30th August 1983.*

1984: *The first joint Indo–Soviet manned mission launched on 3rd April, 1984. Sqn. Ldr Rakesh Sharma became the first Indian cosmonaut.*

1988: *INSAT-IC to be launched.*

gical and upper atmospheric research. RH–560 is India's largest Sounding Rocket capable of reaching an altitude of 350 km with a 100–kg payload weight. Tests are regularly conducted from India's three sounding rocket ranges at Thumba, Sriharikota and Balasore.

India attaches great importance to co-operation with other countries and international agencies, most prominent among them being the USSR, the USA, The Federal Republic of Germany (FRG), France, the European Space Agency (ESA), the United Kingdom (UK) and the United Nations.

Indo-Soviet collaboration in space began with the USSR extending technical assistance to India in setting up her Thumba Equatorial Rocket Launching Station (TERLS), way back in 1962. TERLS was dedicated to the United Nations in 1968 and has since operated as an international sounding rocket range.

Regular meteorological soundings are being jointly conducted from TERLS by India and the USSR using the Soviet M–100 rockets. The collaboration between the two countries further intensified with the USSR offering free launches for the three Indian satellites, Aryabhata, Bhaskara–1 and Bhaskara–II.

The USSR also helped India establish her Satellite Tracking & Ranging Station (STARS) and offered the Luna–24 moon rock samples to Indian scientists for investigation. Scientists from the two countries have also conducted joint balloon experiments in gamma–ray astronomy from India's balloon facility at Hyderabad.

With the successful completion of the eight-day Indo-Soviet joint manned mission abroad Soyuz-T–11/Salyut–7, the collaboration between the two nations in the peaceful use of outer space, which entered its twenty-second year in 1984, literally came of age.

The launch of the first Indian Remote Sensing Satellite (IRS), would again be from the USSR on board the first launch vehicle commercially procured from that country.

National Science Day

India will have a National Science Day from now onwards. February 28th of every year will be observed as the National Science Day.

On this day in 1928, Sri C. V. Raman observed the phenomenon concerning light scattering — the Raman Effect — which brought him the Nobel Prize.

The decision to honour the Nobel Laureate like this is expected to provide a stimulus to science education and to popularise science among the younger people.

The minimum goal of the country's science planners is to achieve universal immunisation, drinking water supply to villages, raising production of oilseeds and improving communication facilities.

The dedication of TERLS to the UN, the conduct of instructional television experiments via USA's ATS–6 satellite and communication experiments using the Franco-German 'Symphonie' spacecraft, the launching of Aryabhata and Bhaskara spacecraft by the Soviet Union and of APPLE on board ESA's Ariane, and the orbiting of INSAT–1B by USA's Space Shuttle are important landmarks in India's policy of active collaboration with other countries in harnessing Space for national development.

As part of ISRO's co-operation with industry many technologies/processes developed by ISRO in the areas of electronics, chemicals and materials have been transferred to Indian industries for commercial production.

STATES AND TERRITORIES

The Union of India, made up of 25 States and 9 Union Terriroties, is in a state of demographic transition. Demographic transition indicates the passage of a population from high mortality and fertility rates to low mortality and low fertility.

The 1981 census count placed the Indian population at 685.2 million as on the first o March. The population has grown at an annua average rate of 0.83 per cent* between 190

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* Percentage based on the provisional figure of 684 month

Union of India: Basic Data

Region	Capital	Area (sq km)	Population (1981)
INDIA	New Delhi	3,287,263@	685,184,692

States:	Capital:	Area (sq km)	Population (1981)	Percentage to All India†
1 Andhra Pradesh	Hyderabad	275,068	53,549,673	7.82
2 Arunachal Pradesh	Itanagar	88,743	631,839	0.09
3 Assam‡	Dispur	78,438	19,896,843	2.90
4 Bihar	Patna	173,877	69,914,734	10.20
5 Goa (including Daman & Diu)	Panaji	3,814	10,086,730	0.16
6 Gujarat	Gandhinagar	196,024	34,085,799	4.97
7 Haryana	Chandigarh	44,212	12,922,618	1.89
8 Himachal Pradesh	Shimla	55,673	4,280,818	0.62
9 Jammu & Kashmir	Srinagar/Jammu*	222,236	5,987,389	0.87
10 Karnataka	Bangalore	191,791	37,135,714	5.42
11 Kerala	Trivandrum	38,863	25,453,680	3.71
12 Madhya Pradesh	Bhopal	443,446	52,178,844	7.62
13 Maharashtra	Bombay	307,690	62,784,171	9.16
14 Manipur	Imphal	22,327	1,420,953	0.21
15 Meghalaya	Shillong	22,429	1,335,819	0.19
16 Mizoram	Aizwal	21,081	493,757	0.07
17 Nagaland	Kohima	16,579	774,930	0.11
18 Orissa	Bhubaneswar	155,707	26,370,271	3.85
19 Punjab	Chandigarh	50,362	16,788,915	2.45
20 Rajasthan	Jaipur	342,239	34,261,862	5.00
21 Sikkim	Gangtok	7,096	316,385	0.05
22 Tamil Nadu	Madras	130,058	48,408,077	7.06
23 Tripura	Agartala	10,486	2,053,058	0.30
24 Uttar Pradesh	Lucknow	294,411	110,862,013	16.18
25 West Bengal	Calcutta	88,752	54,580,647	7.97

Union Territories	Headquarters	Area (sq km)	Population 1981	Percenttage to All India
1 Andaman & Nicobar Islands	Port Blair	8,249	188,741	0.03
2 Chandigarh	Chandigarh	114	451,610	0.07
3 Dadra & Nagar Haveli	Silvassa	491	103,676	0.02
4 Delhi	Delhi	1,483	6,220,406	0.91
5 Daman & Diu	Daman	112	78,981	0.012
6 Lakshadweep	Kavaratti	32	40,249	0.01
7 Pondicherry	Pondicherry	492	604,471	0.09

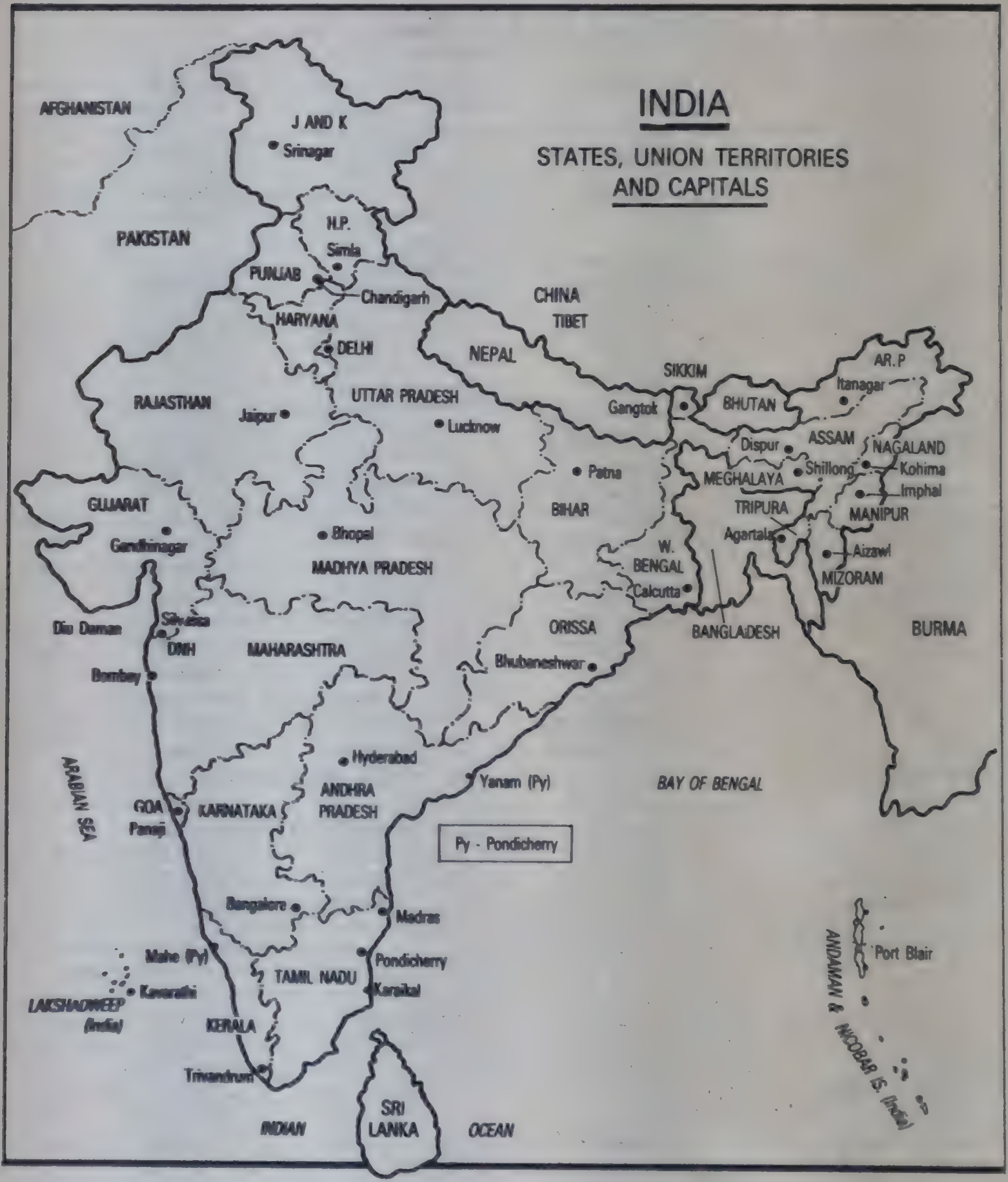
* Srinagar (Summer Capital), Jammu (Winter Capital)

† Uttar Pradesh, Bihar and Madhya Pradesh account for 34.0 per cent or more than one-third of the total population of India.

‡ Projected.

@ The total area of the country represents provisional 'Geographical area as on 31st March 1982, supplied by the Survey of India. The area includes 78,114 sq km under illegal occupation of Pakistan. 5,180 sq km illegally handed over by Pakistan to China and 37,555 sq km under illegal occupation of China.

and 1951 and at a more rapid pace of 2.13 per cent in the post-independence period between 1951 and 1981. If this rate continues until the year 2000, the Indian population



INDIA

STATES, UNION TERRITORIES AND CAPITALS

AFGHANISTAN
J AND K
Srinagar
PAKISTAN
H.P.
Simla
PUNJAB
Chandigarh
HARYANA
DELHI
CHINA
TIBET
NEPAL
SIKKIM
Gangtok
BHUTAN
AR.P
Itanagar
RAJASTHAN
Jaipur
UTTAR PRADESH
Lucknow
ASSAM
Dispur
NAGALAND
Kohima
Shillong
MEGHALAYA
Imphal
Patna
BIHAR
TRIPURA
MANIPUR
GUJARAT
Gandhinagar
Bhopal
Agartala
Aizawl
W. BENGAL
MIZORAM
MADHYA PRADESH
Calcutta
Silvassa
Diu Daman
DNH
MAHARASHTRA
ORISSA
BANGLADESH
BURMA
Bombay
Bhubaneshwar
Hyderabad
ARABIAN SEA
Yanam (Py)
ANDHRA PRADESH
BAY OF BENGAL
GOA
Panaji
KARNATAKA
Py - Pondicherry
Bangalore
Madras
Mahe (Py)
Pondicherry
Port Blair
TAMIL NADU
Kavarathi
Karaikal
ANDAMAN & NICOBAR IS. (India)
LAKSHADWEEP (India)
KERALA
Trivandrum
SRI LANKA
INDIAN
OCEAN

would be 1025 million, about one-half more than what it is today.

There are many stages in the demographic transition beginning with a declining mortality and continuing fertility to a stage where both mortality and fertility rates decline more or less at the same rate and keep the population stable over a period of time.

The difference is essentially a difference of ratios between mortality and fertility rates in population group. The Indian nation is not a population group in this sense. Rather, it is made up of various population groups. These population groups tend to be so small that even a State may contain a large number of such groups.

But at present, the States remain the lowest population group which can be demographically assessed. On this basis, the 15 major States (excluding Assam, where the census has not been completed) may be grouped into four: (i) Jammu & Kashmir, Rajasthan, Uttar Pradesh and Bihar, (ii) Karnataka, Punjab and Andhra Pradesh, (iii) Haryana, Gujarat, Madhya Pradesh, Maharashtra and West Bengal and (iv) Kerala, Orissa and Tamil Nadu.

These 15 states contain 94.2 per cent of India's population. Only three states among them (Kerala, Orissa & Tamil Nadu) with a total population of 100 million or 15.5 per cent, are in an advanced stage of transition with a declining growth rate below 2 per cent. The growth rates of another five states (group iii) with a total population of 216 million or 33.6 per cent have started declining, though still above 2 per cent. The remaining seven states (groups i & ii) with slightly above half the population (50.9 per cent), are just entering the demographic transition with declining mortality but with no significant decline in fertility.

The growth rate for 1971-1981 averages at around 2.48 per annum for all India. As against this, the growth rate for group (i) is above 2.5 and for group (ii) around 2.5, both increasing trends. For group (iii) the growth rate averages below 2.5. Though this is still an increasing growth rate, it is on the low side. Group (iv) shows an average of less than 2, definitely a declining trend.

ANDHRA PRADESH

Area: 275,068 sq km. **Capital:** Hyderabad. **Population:** 53,549,673. **Languages:** Telugu and Urdu. **Literacy:** 29.73%.

Physiography: Andhra Pradesh is the fifth largest state in India, both in area and population. Bounded by MP and Orissa in the north, the Bay of Bengal in the east, T. Nadu and Karnataka in the south and Maharashtra in the west, AP forms the major link between the north and the south of India. The northern area of AP is mountainous with an annual rainfall of 45 to 50 inches. The highest peak *Mahendragiri* rises 4920 ft above the sea level. As we go further south, the rainfall comes down to 20 inches annually. The climate is generally hot and humid. AP is principally fed by the south west monsoon, the north east monsoon contributing about one-third to the rainfall.

The *Krishna* and the *Godavari* are the major river systems in the state. The Godavari is the largest and the broadest river of South India. The Tungabhadra is an important tributary of the Krishna. Other important rivers are the Pennar, Vamsadhara and the Nagavali. All these rivers are rainfed, and are of great economic significance to the state because of their rich hydropower and irrigation potential.

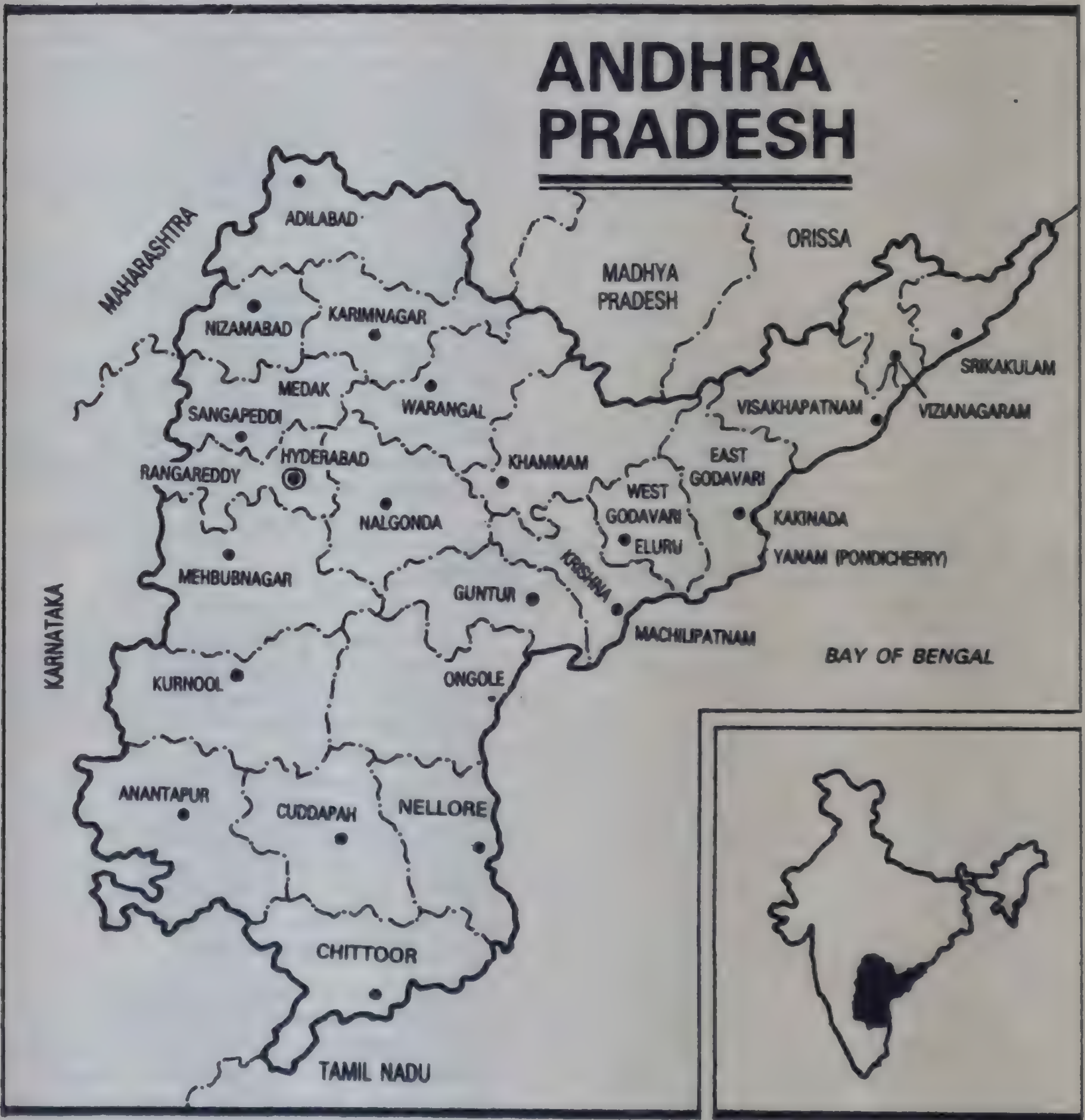
History: The word 'Andhra' is equally applicable to the land, the people and the language, although the language in course of time developed a name of its own—*Telugu*.

The Andhras, originally an Aryan race, migrated to the south of the Vindhyas where they mixed with the non-Aryan stocks. Andhra Pradesh first enters history as part of the great Mauryan empire.

In the 13th century, the Kakatiyas, with their capital at Warrangal, dominated Andhra desa. In 1323, the Tughlak Sultan of Delhi captured the Kakatiya ruler and ended the dynasty. The Tughlaks never cared to annex the Kakatiyan dominions and four local kingdoms arose out of the old Kakatiyan empire.

One of these kingdoms was Vijayanagar. The Vijayanagar empire stood as a bulwark against Muslim expansionism for more than 200 years. Vijayanagar had to contend with Muslim sultanates in the north time and again. Sometimes Vijaynagar joined one sultan against another. These tactics finally led to a grand alliance of the sultanates of Ahmadnagar, Bijapur, Golconda and Bidar against Vijayanagar. On 23rd January, 1565 the Deccan sultans humbled the mighty Vijayanagar army at the battle of Talikota.

The Qutb Shahis of Golconda laid the foundations of the modern city of Hyderabad. Emperor Aurangzeb routed the Qutb Shahis and appointed Asaf Jan the governor of Deccan. As the Mughal Empire tottered under Aurangzeb's successors, the Asaf Jahis made themselves independent rulers under the title of Nizam. The Nizams became involved in the


ANDHRA PRADESH
MAHARASHTRA
ADILABAD
NIZAMABAD
KARIMNAGAR
MEDAK
WARANGAL
SANGAPEDDI
HYDERABAD
RANGAREDDY
NALGONDA
KHAMMAM
MEHBUBNAGAR
KARNATAKA
KURNOOL
GUNTUR
ONGOLE
ANANTAPUR
CUDDAPAH
NELLORE
CHITTOOR
TAMIL NADU
MADHYA PRADESH
ORISSA
SRIKAKULAM
VIZIANAGARAM
VISAKHAPATNAM
EAST GODAVARI
WEST GODAVARI
ELURU
KAKINADA
YANAM (PONDICHERRY)
KRISHNA
MACHILIPATNAM
BAY OF BENGAL

Anglo-French wars in the Deccan and had finally to enter into a subsidiary alliance with the British in 1800.

Andhra Pradesh is the first state in India that has been formed on a purely linguistic basis When India became independent, the Andhras, that is, the Telugu-speaking people, were distributed in about 21 districts, 9 of them in the Nizam's Dominions and 12 in the Madras Presidency. On the basis of an agitation on Oct. 1, 1953, 11 districts of the Madras State were put together to form a new Andhra State with Kurnool as capital.

On Nov. 1, 1956 in accordance with the recommendations of the State Reorganization Commission, the Andhra State was enlarged by the addition of nine districts formerly in the Nizam's Dominions. Hyderabad, the former capital of the Nizam, was made the capital of the enlarged Andhra State.

AP thus consisted of three distinct regions: (1) coastal region, made up of eight districts, generally called *Andhra,* (2) the interior region, consisting of four districts collectively known as *Rayalaseema* and (3) *Telengana* region, consisting of the capital Hyderabad and nine adjoining districts.

From 1969 to 1972 AP was rocked by riots, first in Telengana, then in Andhra on the question of bifurcation of the state. The Central Government refused to consider the question of bifurcation. A six-point formula was put forward by the Prime Minister Mrs. Indira Gandhi as a compromise. The formula was generally accepted and peace was restored in the state.

The six-point formula has been incorporated into the Constitution as the Thirty second Amendment 1973.

Administration: The legislature in the A.P. is unicameral, the Legislative Assembly has 295 seats. A.P. Legislative Council was abolished on June 1, 1985.

Districts

District	Area (sq km)	Population†	Headquarters
Andhra Region			
Anantapur*	19130	2548012	Anantapur
Chittoor*	15152	2737316	Chittoor
Cuddapah*	15359	1933304	Cuddapah
E. Godavari	10807	3701040	Kakinada
Guntur	11391	3434724	Guntur
Krishna	8734	3048463	Machilipatnam
Kurnool	17658	2407299	Kurnool
Nellore	13076	2014879	Nellore
Prakasam	17626	2329571	Ongole
Srikakulam	5837	1959352	Srikakulam
Visakhapatnam	11161	2576474	Visakhaptatnam
Vizianagaram	6539	1804196	Vizianagaram
W. Godavari	7742	2873958	Eluru
Telengana Region			
Adilabad	16128	1639003	Adilabad
Hyderabad	217	2260702	Hyderabad
Ranga Reddy	7493	1582062	Hyderabad
Karimnagar	11823	2436323	Karimnagar
Khammam	16029	1751574	Khammam
Mahaboobnagar	18432	2444619	Mahaboobnagar
Medak	9699	1807139	Sangareddy
Nalgonda	14240	2279685	Nalgonda
Nizamabad	7956	1679683	Nizamabad
Warrangal	12846	2300295	Warrangal
Total		53549673	

* Rayalaseema.
† Census of India 1981.

Andhra is divided into 23 districts. Two new districts created are Ranga Reddy District (August 15, 1979, from Hyderabad District) and Vizianagaram District (June 1, 1979 from Visakhapatnam and Srikakulam Districts). The headquarters for Ranga Reddy District for the time being is Hyderabad City and for Vizianagaram district, Vizianagaram city.

State of Economy: A.P. has a widely diversified farming base, with a rich variety of cash crops. It is surplus in foodgrains and can rightly claim to be the granary of the south. Agricultural sector accounts for around 50% of the state's income and provides livelihood to 70% of the population. The crops extensively cultivated in the state are paddy, jowar, bajra, ragi, maize, groundnut, chillies, tobacco, cotton, castor and sugar cane.

A.P. leads all other states in the production of tobacco with a virtual monopoly of virginia tobacco. The production of tobacco in 1985-86 was 1.45 lakh tonnes and production of ground nut was 13.10 lakh tonnes. Production of foodgrain reached 103.73 lakh tonnes in 1985-86.

Andhra Pradesh which has for long been at the bottom of the industrial map of India today stands fifth in the country in terms of industrial development, sixth in respect of employment, seventh in respect of output and eighth in respect of productive capital and value added.

There are 606 medium and large scale industries with a capital investment of nearly Rs. 3060 crore, providing employment for more than 4.25 lakh persons. Further, there are 58263 small scale units in the state with an investment of Rs. 795.22 crore, providing employment for about 5.51 lakh persons.

The work on the steel plant at Visakhapatnam is in full swing. Foundation for the railway carriage repair workshop at Tirupati has been laid.

Tourist Centres: Andhra Pradesh is rich in historical monuments. It possesses many holy temples which attract large numbers of pilgrims and tourists.

Tirupati in Chittoor district houses one of the most famous temples in India. The presiding deity is known as Venkateswara. The main temple is situated on a hill-top, Tirumalai, and is a masterpiece of South Indian architecture.

The temple of Sriramachandra at Bhadrachalam, the Mallikarjunaswami temple at Srisailam, the Ahobalam temple, Srikunmam temple and the Simhachalam temple are among the other famous temples of Andhra Pradesh. The main tourist attraction is the capital of the state, *Hyderabad*. The capital is in reality the twin cities of Hyderabad and Secunderabad linked together by the Hussain Sagar. Places of interest are the Char Minar built in 1591, Osmania University, State Museum and Art Gallery, Salarjung Museum, Health Museum, Nehru Zoological Park, Public Gardens and Birla Mandir.

Another important centre of tourism is Golconda, about 8 km from Hyderabad. The capital of the Qutb Shahi Sultans in the 16th century, Golconda is rich in historical monuments which include the famous Golconda Fort. Golconda was known the worldover, as a rich mine of diamonds in the mediaeval times. The famous diamonds, *Kohinoor* and *Pitt*, came from the diamond mines of Golconda.

Governor: Kumud Ben Mani Shanker Joshi, **Chief Minister:** N. T. Rama Rao. (Telugu Desam).

ARUNACHAL PRADESH

Area: 83,743 sq km **Capital:** Itanagar. **Population:** 6,32,000. **Languages:** Monpa, Aka, Miju, Sherdukpen, Nishi, Apatani, Hill Miri Tagin, Adi, Idu, Digaru, Miji, Khampti, Singpho, Tangsa, Nocte, Wancho. **Literacy:** 20.9%.

Arunachal Pradesh (Land of the Dawn-lit Mountains) is a thinly populated hilly tract on the eastern most part of India, surrounded on three sides by the international border with Bhutan to the west, China to the north and Burma to the east and Assam to the south.

Physiography: Arunachal is entirely mountainous except for thin strips of flat land most of which adjoin Assam. Dense forests cover more than two-thirds of the territory. The hydel potential is very high.

The population of Arunachal is predominantly tribal. All the tribes belong to Scheduled Tribes. According to the 1981 census, Scheduled Tribes formed 79 per cent of the population as against an average of 7 per cent for the whole of India. There are about 20 major tribes which are divided into a number of sub-tribes. The principal tribes are: Adi, Nishi, Apatani, Tagin, Mishmi, Khampti, Nocte, Wancho, Tangsha, Singpho, Monpa, Sherdukpen, Aka, etc. These tribes speak their own tongues. These tribal people are colourful and hospitable and fond of music and dance.

History: Arunachal, originally known as the North East Frontier Agency (NEFA), was placed under the administration of the Union Government in 1948. It was declared a Union Territory under the name of Arunachal Pradesh on January 20,1972. It became a full fledged state of the Union in December, 1986.

Administration: On 15th August 1975, the Pradesh Council of Arunachal Pradesh was converted into a Legislative Assembly. A Council of Ministers was also constituted.

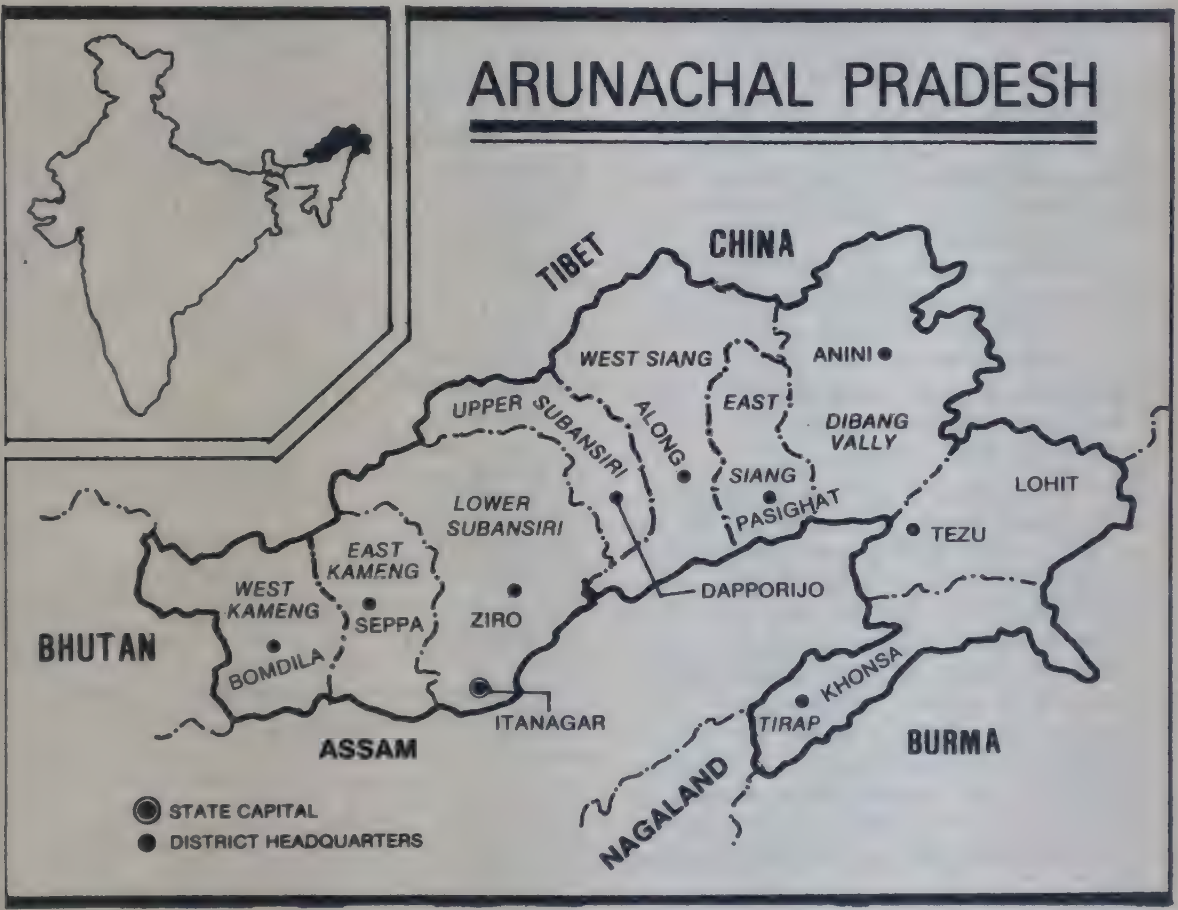
The territory is divided into 10 districts, each under a Deputy-Commissioner. Itanagar is the capital of the territory and is in Lower Subansiri district. The state is administered by a Governor.

Districts

District	Population (1981 census)	Area (sq km)	Head quarters
West Kameng	41,567	9,594	Bomdila
East Kameng	42,736	4,134	Seppa
Lower Subansiri	1,12,650	13,010	Ziro
Upper Subansiri	39,410	7,032	Daporijo
West Siang	74,164	12,006	Along
East Siang	70,451	6,512	Pasighat
Dibang Valley	30,978	13,029	Anini
Lohit	69,498	11,402	Tezu
Tirap	1,28,650	7,024	Khonsa
Tawang	21,735	NA	Tawang
Total	6,31,839	83,743	

State of Economy: Nearly 46 per cent of the population of Arunachal Pradesh is engaged in agriculture. Irrigated area forms 26 per cent of the total cultivated area of about 1,33,430 hectares. The traditional method of agriculture is jhumming, a kind of shifting cultivation. The forests are cleared and crops are raised for one to three years, depending on the fertility of the soil. Thereafter the cultivators move on elsewhere. A determined effort is being made to wean the people from jhumming. A total area of 56,270 hectares of land has been brought under permanent cultivation. The main crops are rice, maize, millet, wheat and mustard.

About 61,000 sq km of the territory is covered by forest, which has become an important source


ARUNACHAL PRADESH
TIBET
CHINA
WEST SIANG
ANINI
UPPER SUBANSIRI
ALONG
EAST
DIBANG VALLY
SIANG
LOHIT
LOWER SUBANSIRI
PASIGHAT
TEZU
EAST KAMENG
WEST KAMENG
SEPPA
ZIRO
DAPPORIJO
BHUTAN
BOMDILA
KHONSA
ITANAGAR
TIRAP
ASSAM
BURMA
NAGALAND
STATE CAPITAL
DISTRICT HEADQUARTERS

of revenue for the territory.

The territory has a bright prospect of forest-based industries. A remarkable number of medium and small scale industries including saw mills, plywood and veneer mills, rice mills, fruit preservation units, oil expellers, besides handloom and handicraft industries have been established. The territory has 1086 units of small scale and 12 units of medium scale industries. Construction of a cement plant with a capacity of 30 tonnes per day and drilling of crude oil are in progress. A paper mill with a capacity of 100 tonnes per day is also to be set up very soon. **Tourist Centres:** Capital city of Itanagar with remnants of the Itafort, ancient Buddhist Monastery near Tawang, archaeological centres of Malinitan, Bismak Nagar, Nandapa Wildlife Sanctuary are of tourist interest.

Lt. Governor: R. D. Pradhan. **Chief Minister:** Gegong Apang.

ASSAM

Area: 78,523 sq km **Capital:** Dispur. **Population:** 2,27,66,000. **Language:** Assamese. **Literacy:** 28%.

Scholars are not agreed on the origin of the name "Assam". Some say that Assam is called so, because of its unequal terrain—that is, hills interspersed with valleys. They rely on a similar-sounding Sanskrit word, meaning unequal. This explanation appears to be far-fetched. A more acceptable version is that Assam is only the anglicised version of 'Asom'—which was the name the Ahoms gave to the country, when they conquered it.

Physiography: Geographically Assam is a shadow of its former self. It has been reduced to one-third of its original size in thirty years' time. In 1947 Assam had an area of over 2 lakh sq km excluding the then North East Frontier Agency (NEFA), the present Arunachal Pradesh. Today the total area of Assam is only

78,523 sq km. The depletion in geographical area resulted from political changes that came one after the other since 1947.

In the partition of India (1947) Assam lost Sylhet district, except a major portion of Karimjang sub-division, to East Pakistan, now Bangladesh. Out of the 27 lakh population of Sylhet, Assam retained only 7 lakh, the rest going to Pakistan. Thereafter, Assam continued to lose territory and population step by step as Nagaland, Meghalaya, Mizoram and Arunachal Pradesh were separated from it.

Assam, as it is today, may be divided into two important physical regions—the Barak valley and the Brahmaputra valley.

Assam is dominated by the Brahmaputra river. The total length of the river from the source to the sea is 2900 km. Its drainage area is roughly 935,500 sq km. It has 120 tributaries. After travelling 1609 km through Tibet, the river turns southeast making a hair-pin bend at a place, a few miles east of Namcha Burwa. Thereafter it is joined by tributaries. After crossing the Garo Hills, it makes a southerly turn and meets the Ganga at Goalundo. During the course of its flow in Assam for about 725 km through almost every district, the river has carved out an extensive valley of its own.

Rainfall in Assam is one of the highest in the world. It varies between 178 and 305 cm. All this rainfall is concentrated in 4 months, June to September. This concentration of rainfall affects the state in two diametrically opposite ways, namely floods and droughts.

History: An ideal meeting ground for diverse races, Assam gave shelter to streams of human waves carrying with them distinct cultures and trends of civilization. Austro-Asiatics, Negritos, Dravidians, Alpines, Indo-Mongoloids, Tibeto-Burmese and Aryans penetrated into Assam through different routes and contributed in their own way towards the unique fusion of a new community which came to be known in later history as the Assamese. Assam, however, remained predominantly a land of the Tibeto-Burmese. The vast section of the people of Assam belong either to this stock or owe their origin to the fusion of this stock with other racial groups.

Assam, known in ancient lore as Kamarupa, originally included in addition to modern Assam, parts of modern Bengal and Bangladesh. Guwahati, the pulsating centre of Assam, is an ancient town whose history goes back to the puranic days. The city, anciently known as Pragjyotishpur, was said to have been founded by King Narakasur, who is mentioned in the puranas and epics. His son Bhagadatta led a large elephant force to the battlefield of Kurukshetra, and fell fighting on the side of the Kauravas.

In the 13th century, the country was conquered by the Ahoms under the leadership of Sukapha, a prince of the Shan tribe, in the Upper Irravaddy Valley.

The advent of the Ahoms changed the course of Assam's history. Ahoms fought the local Karchari, Chutia and Moran kings and established their sway in course of time, over the whole of Brahmaputra Valley.

The Ahoms appointed Bharphakans (Viceroys) to rule Kamarupa and Gauhati became the capital of these Viceroys. The last of the Viceroys was Badanchandra, who in an ill-advised bid for power invited the Burmese to help him. The Burmese dislodged the Ahoms and dismissed their Viceroy, Badanchandra. The Ahoms appealed to the British for help.

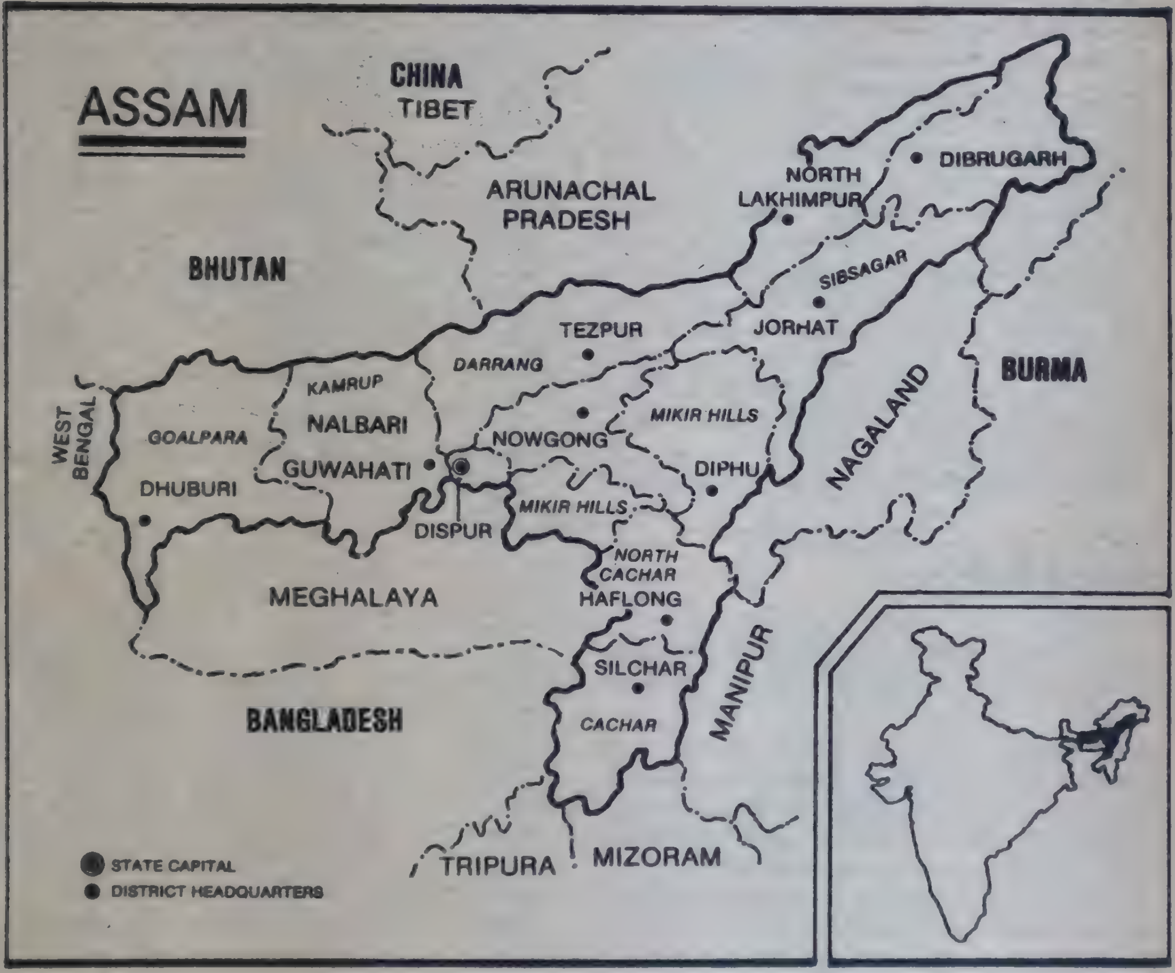
The British defeated the Burmese in several battles, in what has since been called the First Burmese War. With the Treaty of Yandabo in 1826, the Burmese vacated Assam, leaving the Briish in possession. The conquered territory was placed under the administration of an Agent to the Governor General. In 1832 Cachar was annexed to Assam. In 1835, the Jaintia Hills were made part of Assam. Upper Assam was annexed to Bengal in 1839. In 1874 a separate province of Assam under a Chief Commissioner was created, with Shillong as capital.

On the partition of Bengal in 1905, Assam was united to the eastern districts of Bengal under a Lt. Governor. From 1912 the Chief Commissionership of Assam was revived, and in 1921 a Governorship was created.

On the partition of India almost the whole of the predominantly Muslim district of Sylhet was merged with East Bengal (present Bangladesh). Dewanagiri in North Kamarupa was ceded to Bhutan in 1951.

Assam lost a good deal of its former territory, as a result of political changes, from time to time.

In 1948, the North East Frontier Agency was


ASSAM
CHINA
TIBET
ARUNACHAL PRADESH
BHUTAN
NORTH LAKHIMPUR
DIBRUGARH
SIBSAGAR
JORHAT
TEZPUR
DARRANG
KAMRUP
NALBARI
WEST BENGAL
GOALPARA
DHUBURI
GUWAHATI
DISPUR
NOWGONG
MIKIR HILLS
MIKIR HILLS
DIPHU
NAGALAND
BURMA
NORTH CACHAR
HAFLONG
MEGHALAYA
SILCHAR
CACHAR
MANIPUR
BANGLADESH
TRIPURA
MIZORAM
STATE CAPITAL
DISTRICT HEADQUARTERS

separated from Assam, for security reasons. In 1963, Nagaland was carved out of Assam as a full-fledged state. On 21st Jan. 1972, Meghalaya was cut out of Assam, as a separate state and Mizoram became a Union Territory.

Administration: The Legislature consists of only one house—the Legislative Assembly. The state is divided into 18 districts.

Districts

	Area in sq km	Headquarters
Barpeta	3,307.3	Barpeta
Cachar	5,102.2	Silchar
Darrang	3,465.3	Mangaldoi
Dhubri	2,745.5	Dhubri
Dibrugarh	7,023.9	Dibrugarh
Goalpara	2,843.8	Goalpara
Jorhat	6,400.0	Jorhat
Kamrup	6,601.4	Guwahati
Karbi Anglog	10,332.0	Diphu
Karimganj	1,839.0	Karimganj
Kokrajhar	4,716.5	Kokrajhar
Lakhimpur	5,646.4	Lakhimpur
Nagaon	5,561.0	Nagaon
North Cachar Hills	4,890.0	Haflong
Nalbari	2,022.8	Nalbari
Pragiotishpur	47.3	Pragjotishpur
Sibsagar	2,602.9	Sibsagar
Sonitpur	5,225.2	Tezpur

Nalbari District was inaugurated on 14th August, 1985.

State of Economy: Assam is rich in mineral wealth. It holds a unique position in the production of mineral oil. Other minerals found in the state are coal, limestone, refractory clay, dolomite and natural gas.

Of the agriculture-based industries, tea occupies an important place. There are nearly

750 tea plantations in the state. Petroleum and petroleum products amount to a large share of the country's total output of petroleum and natural gas. The state has two oil refineries and the 3rd with a Petrochemical Complex is under way. There is also a public sector fertilizer factory at Namrup. Other industries are sugar, jute, silk, paper, plywood, rice and oil milling. Important cottage industries are handloom, sericulture, manufacture of cane and bamboo articles, carpentry, smithy and manufacture of brass utensils. An export oriented handloom project has been started at Sualkuchi to exploit the export potentialities of Eri and Muga.

Tourist Centres: Tourism is only of recent origin. The Government of India has approved the following two travel circuits in the state: 1. Guwahati-Kaziranga-Sibsagar. 2. Gauwahati-Manas.

The State Government has also, submitted a proposal for additional circuits: 1. Guwahati-Bhairabkunda-Orang-Bhaluking-Tezpur, 2. Guwahati-Diphu-Haflong-Silchar.

These circuits may be linked with Arunachal, Meghalaya, Manipur and Mizoram and will thus help the integrated development of tourism in the north-eastern region.

Governor: Bhishma Narayan Singh. **Chief Minister:** Prafulla Kumar Mahanta (Asom Gana Parishad).

BIHAR

Area: 173,877 sq km; **Capital:** Patna; **Population:** 6,99,14,734; **Languge:** Hindi; **Literacy:** 26.20%.

The name 'Bihar' is a corrupt form of 'Vihara' which means a Budhist monastery. Bihar, squeezed in between West Bengal, Orissa, MP and UP, reaches up to the Himalayas in the north and is completely landlocked. Bihar is bounded on the north by Nepal, on the south by Orissa, on the east by W. Bengal and on the west by MP and UP.

Physiography: Stretching from the Himalayan foothills in the north to Orissa in the south, Bihar suffers all the vicissitudes of changing seasons. It gets the worst of the cold and the worst of the heat and plenty of floods into the bargain.

The most striking geographical feature of Bihar is the sharp- division between north and south. The northern portion is almost entirely a level tract, while the southern region is wooded and hilly. North Bihar is an extremely fertile strip of land, the land being watered by the rivers Sarayu, Gandak and Ganga.

Southern Bihar, especially in and around the districts of Chota Nagpur and Santhal Parganas, is thickly wooded and consists of a succession of hills. The elevation varies from 300 to 1300 m, the highest peak being 1372 m high.

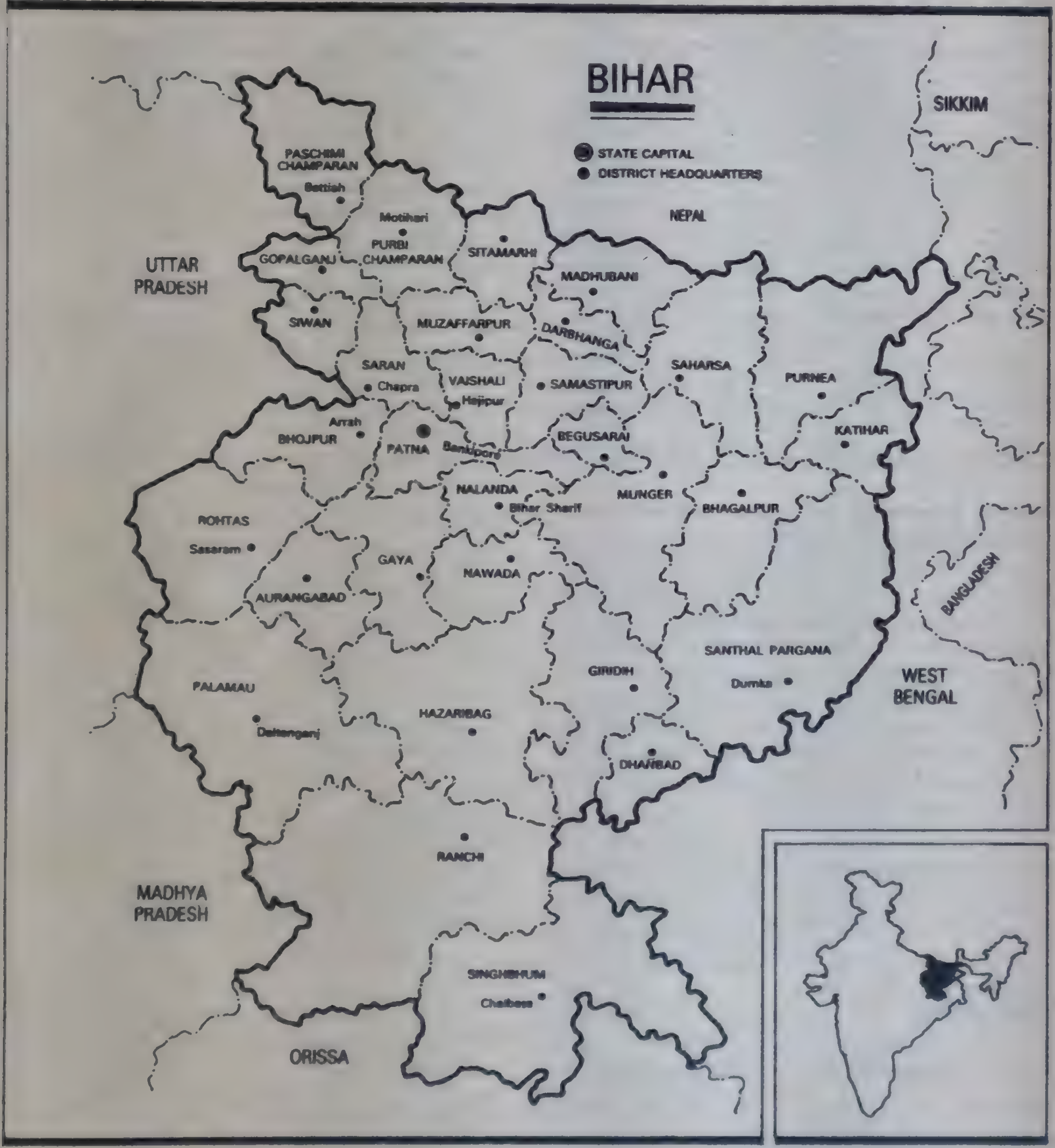
History: Bihar has a very ancient glorious and colourful history. Bihar was the home state of the Mauryan emperors. Under Asoka the Great, Magadha and its capital Pataliputra became famous all over the world. With the death of Asoka, its fortunes declined. However, under the Gupta emperors it regained its lost glories. Under the Sultans of Delhi, and later under the Moghul emperors, Bihar was reduced to the status of a province, whose only importance was that it lay on the route from Bengal to Delhi.

When Sher Shah, a Behari himself, drove out Humayun and occupied the throne of Delhi, Bihar once again shot into lime-light. Sher Shah founded the city of Patna, on the site of the ancient capital Pataliputra and gave the country an efficient administration. Bihar enjoyed a period of peace and stablility under Akbar the Great and later Moghuls.

With the .decline of the Moghul empire, Bihar passed into the hands of the Nawabs of Bengal. The British wrested the country from the Nawab of Bengal, by the decisive battle at Buxar in Bihar (1764). Under the British Bihar was first a part of the Bengal Presidency. In 1911, Bihar along with Orissa, was separated from the Persidency of Bengal. In 1936, Bihar and Orissa became separate provinces.

Administration: Bihar is one of the medium-sized states of India being the ninth in area. But in population it is the second biggest State in India, next only to Uttar Pradesh.

The Legislature consists of two houses--the Legislative Assembly and the Legislative Council. The state is divided in to 39 districts.


BIHAR
STATE CAPITAL
DISTRICT HEADQUARTERS
SIKKIM
NEPAL
UTTAR PRADESH
PASCHIMI CHAMPARAN
Bettiah
Motihari
PURBI CHAMPARAN
SITAMARHI
GOPALGANJ
MADHUBANI
SIWAN
MUZAFFARPUR
DARBHANGA
SARAN
Chapra
VAISHALI
Hajipur
SAMASTIPUR
SAHARSA
PURNEA
Arrah
BHOJPUR
PATNA
Bankipore
BEGUSARAI
KATIHAR
NALANDA
Bihar Sharif
MUNGER
BHAGALPUR
ROHTAS
Sasaram
GAYA
NAWADA
AURANGABAD
BANGLADESH
SANTHAL PARGANA
Dumka
WEST BENGAL
PALAMAU
GIRIDIH
HAZARIBAG
Daltenganj
DHANBAD
RANCHI
MADHYA PRADESH
SINGHBHUM
Chaibasa
ORISSA

Districts

District	Area in sq km	Population	Head Quarters
Patna	3,202.0	3,019,201	Patna
Nalanda	2,367.0	1,641,325	Biharsharif
Nawada	2,494.0	1,099,177	Nawada
Gaya	6,545.0	3,134,175	Gaya
Aurangabad	3,305.0	1,237,072	Aurangabad
Rohtas	7,213.0	2,366,325	Sasaram
Bhojpur	4,098.0	2,407,600	Arrah
Saran	2,641.0	2,084,322	Chapra
Siwan	2,219.0	1,778,930	Siwan
Gopalganj	2,033.0	1,362,123	Gopalganj
Paschim Champaran	5,228.0	1,972,610	Bettiah
Purab Champaran	3,968.0	2,425,501	Motihari
Sitamarhi	2,643.0	1,932,147	Sitamarhi
Muzaffarpur	3,172.0	2,357,388	Muzaffarpur
Vaishali	2,036.0	1,662,527	Hajipur
Begusarai	1,918.0	1,456,343	Begusarai
Samastipur	2,904.0	2,116,876	Samastipur
Darbhanga	2,279.0	2,008,193	Darbhanga
Madhubani	3,501.0	2,325,844	Madhubani

Saharsa	4,071.8	1,989,770	Saharsa
Madhepura	1,788.5	964,033	Madhepura
Purnia	7,943.0	3,595,707	Purnia
Katihar	3,057.0	1,428,622	Katihar
Monghyr	6,398.7	2,546,774	Monghyr
Khagaria	1,485.8	768,653	Khagaria
Bhagalpur	5,589.0	2,621,427	Bhagalpur
Santhal Pargana	5,518.3	1,215,542	Dumka
Deoghar	2,478.6	7,08,828	Deoghar
Godda	2,110.4	7,13.405	Godda
Sahebganj	3,405.4	1,079,753	Sahebganj
Dhanbad	2,996.0	2,115,010	Dhanabad
Giridih	6,892.0	1,731,462	Giridih
Hazaribagh	11,165.0	2,198,310	Hazaribagh
Palamu	12,749.0	1,917,528	Daltonganj
Ranchi	7,574.1	1,823,415	Ranchi
Gumla	9,077.1	1,017,231	Gumla
Lohardaga	1,490.9	2,29,786	Lohardaga
Singhbhum	13,440.0	28,61,799	Chaibasa
Jahanabad	1569.30	9,83,667	Jahanabad

State of Economy: Bihar is ideally suited for agriculture. It has 115 lakh hectares cultivated land out of a total of 174 lakh ha. Presently only 85 lakh hectare land is being cultivated. The principal foodgrain crops are rice, wheat, maize and pulses. Main cash crops are sugarcane, oilseeds, tobacco, jute and potato. Forest covers about 19 per cent of the total area. Important forest products are timber, kendu leaves, lac, gum, sal seed, etc. Bihar Forest Development Corporation collects seeds like Mahua, Karanj and Kusum.

In minerals Bihar is the richest state in India, accounting for nearly 40% of India's total production. Industries based on iron ore, coal, etc. are spread out around Jamshedpur, Bokaro, etc.

The Bihar State Industrial Development Corporation's new coming projects are Sponge Iron at Chandi, G.I. Sheets at Jamui, Nylon in Bhojpur, Solvent extraction plant at Latehar, Watch factory at Ranchi, Cement Plant at Patratu, Transmission Tower at Jasidhi, Bihar Fasteners at Gaya, etc. During 1985-86 10212 small scale industrial units have been registered.

Tourist Centres: Places of tourist interest are Rajigir, Bodh Gaya, Jamshedpur, Bokaro, Nalanda, Patna, Ranchi, Sasaram, Vaishali, Hazaribagh, Betla, Bhimbandh, etc. Bodh Gaya, near Gaya in Bihar, is a Budhdhist centre of pilgrimage. It contains the famous ancient temple near the Bodhi Tree under which Buddha got enlightenment.

Jamshedpur and Bokaro are steel towns.

Nalanda was one of the great seats of learning in ancient India and contains the ruins of many Buddhist temples and monasteries.

Patna, capital of Bihar, stands on the site of the ancient city of Pataliputra.

Sasaram is famous on account of the magnificent tomb of Sher Shah Suri, Emperor of Delhi.

Hazaribagh and Betla have national parks and wild life sanctuaries. Vaishali was the seat of ancient Lichavi Republic.

Governor: P. Venkata Subbaiah. **Chief Minister:** Bindeshwari Dubey (Congress).

GOA

(See special feature: Goa: The Youngest State)

GUJARAT

Area: 1,95,984 sq km. **Capital:** Gandhinagar. **Population:** 3,40,86,000. **Language:** Gujarati. **Literacy:** 43.70%.

Gujarat, lying in the north-west corner of India, is the tenth in point of population (1981). It is bounded on the north-west by Pakistan, on the north by Rajasthan, on the east by MP and on the south and south-east by Maharashtra.

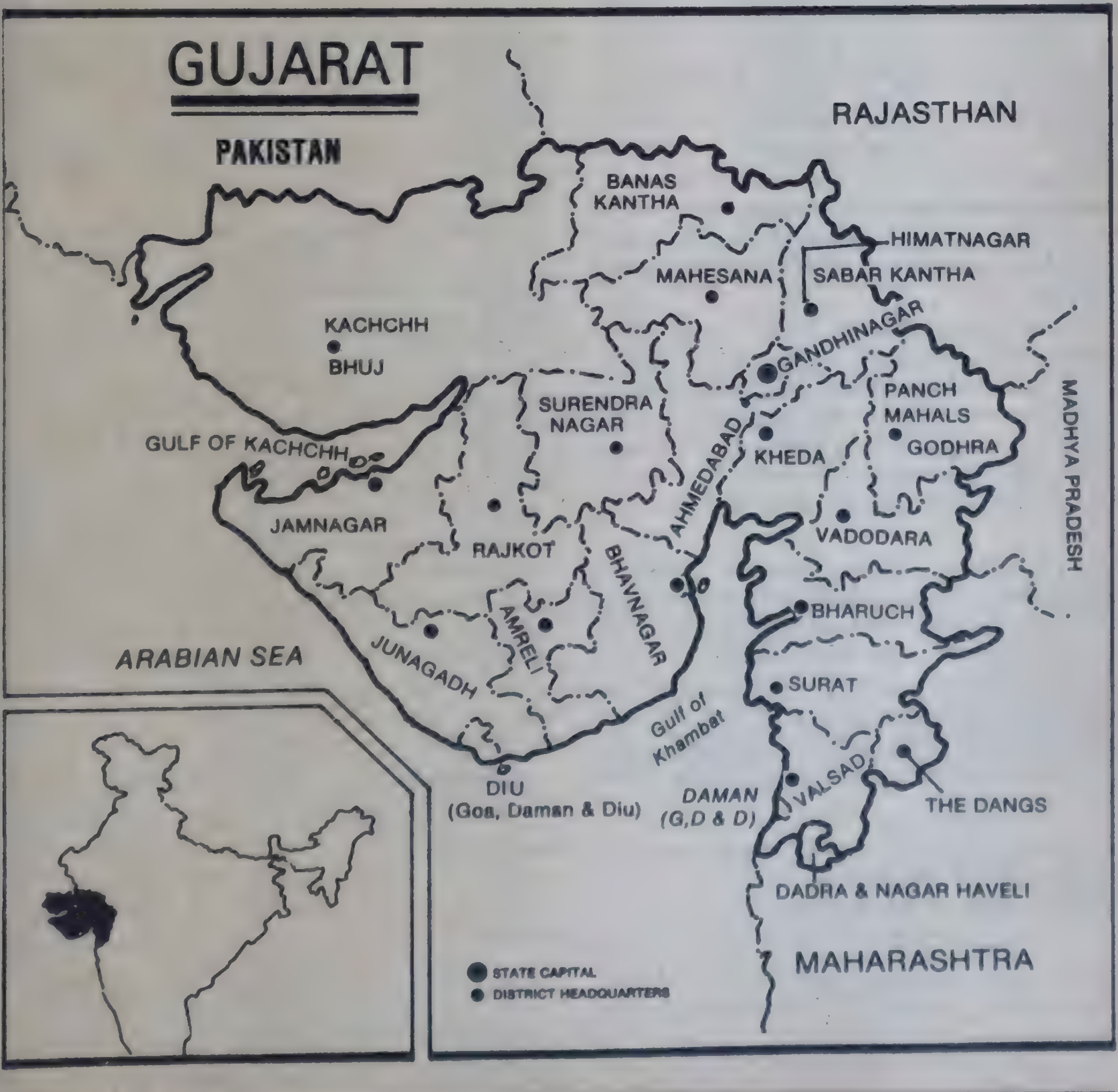
Physiography. The State of Gujarat occupies the northern extremity of the western seaboard of India. The state comprises three geographical regions. (1) The peninsula, traditionally known as Saurashtra. It is essentially a hilly tract sprinkled with low mountains. (2) Kutch on the north-east is barren and rocky and contains the famous Ranns (desert) of Kutch, the big Rann in the north and the little Rann in the east. (3) The mainland extending from the Rann of Kutch and the Aravalli Hills to the river Damanganga is on the whole a level plain of alluvial soil.

The plains of Gujarat are watered by big rivers like Sabarmati, Mahi, Narmada, and Tapti and by smaller rivers like Banas, Saraswathi and Damanganga. The rainfall in the state, except in the arid zones of Surendranagar and north Gujarat, varies between 65 and 127 cm.

As the Tropic of Cancer passes through the northern border of Gujarat, the state has an intensely hot or cold climate. But the Arabian sea and the Gulf of Cambay in the west and the forest-covered hills in the east soften the rigours of climatic extremes.

History: On May 1, 1960, as a result of the Bombay Reorganization Act, 1960, the State of Gujarat was formed from the north and west (predominantly Gujarati speaking) portion of Bombay State, the remainder being renamed the State of Maharashtra. Gujarat consists of the following districts of the former State of Bombay: Banas Kantha, Mehsana, Sabar Kantha, Ahmedabad, Kaira, Pancha Mahals, Vadodara, Bharuch, Surat, Dangs, Amreli, Surendranagar, Rajkot, Jamnagar, Junagadh, Bhavnagar, Kachchh, Gandhinagar and Bulsar.

Administration. Gujarat has a unicameral legislature, the Legislative Assembly, which has 182 elected members. The state is divided


GUJARAT
PAKISTAN
RAJASTHAN
BANAS KANTHA
HIMATNAGAR
MAHESANA
SABAR KANTHA
KACHCHH
BHUJ
GANDHINAGAR
PANCH MAHALS
SURENDRA NAGAR
GULF OF KACHCHH
AHMEDABAD
KHEDA
GODHRA
MADHYA PRADESH
JAMNAGAR
RAJKOT
VADODARA
BHAVNAGAR
AMRELI
BHARUCH
ARABIAN SEA
JUNAGADH
SURAT
Gulf of Khambat
VALSAD
DIU (Goa, Daman & Diu)
DAMAN (G,D & D)
THE DANGS
DADRA & NAGAR HAVELI
MAHARASHTRA
STATE CAPITAL
DISTRICT HEADQUARTERS

into 19 districts.

Districts

District	Area (sq km)	Population	Head quarters
Ahmedabad	8,707	38,75,794	Ahmedabad
Amreli	6,760	10,79,097	Amreli
Banaskantha	12,703	16,67,914	Palanpur
Bharuch	9,038	12,96,451	Bharuch
Bhavnagar	11,155	18,79,340	Bhavnagar
Gandhinagar	649	2,89,088	Gandhinagar
Jamnagar	14,125	13,93,076	Jamnagar
Junagadh	10,607	21,00,709	Junagadh
Kheda	7,194	30,15,027	Kheda
Kachchh	45,652	10,50,161	Bhuj
Mahesana	9,027	25,48,787	Mahesana
Panchmahals	8,866	23,21,689	Godhra
Rajkot	11,203	20,93,094	Rajkot
Sabarkantha	7,390	15,02,284	Himatnagar
Surat	7,657	24,93,211	Surat
Suredranagar	10,489	10,34,185	Surendranagar
Dangs	1,764	1,13,664	Ahwa
Vadodara	7,794	25,58,092	Vadodara
Valsad	5,244	14,74,136	Valsad

State of Economy: Gujarat ranks the first in the country in the production of cotton and groundnut and second in the production of tobacco.

Cotton and groundnut have found good markets and provide a foundation for important industries like textiles, oil and soap. Other important cash crops are isabgul, cumin, sugarcane, mangoes and bananas. The chief food crops of the state are paddy, wheat and bajra. Jowar and maize are produced in local areas.

In 1984-85 production of cotton was 20.69 lakh bales, groundnut 20.61 lakh tonnes and foodgrains 5.66 lakh tonnes. Gujarat has 19.66 lakh hectares of land under forest.

Gujarat has a dominant textile industry. New industries, which are coming up, are chemicals, petrochemicals, fertilizers, drugs and pharmaceuticals, dye-stuffs and engineering units of multiple types.

The state is a major producer of inorganic chemicals such as soda-ash and caustic soda as well as chemical fertilizers. It has the largest petro-chemical complex in the country.

The dairy industry has made tremendous advance and the state accounts for nearly 63 percent of infant milk produced in the country.

Exploration and production of oil and natural gas in Ankleshwar, Cambay and Kalol and oil refinery at Koyali are other industrial achievements. Near Bharuch Gujarat Narmada Valley Fertilizer Company has achieved great success. Ankleshwar industrial estate is humming with a number of industries. On the coastal areas of Saurashtra ship-breaking yards have taken shape at Alang and Sachana. Jamnagar, Porbander, Jafrabad, Bhavnagar, etc. are busy with new industries, trade and business.

Gujarat is a major salt producing state and its production forms as much as 60 per cent of the country's output.

Gujarat has now more than 70,000 small-scale units and 13,000 factories including 1328 textile factories. There are about 167 Industrial Estates in the State.

Tourist Centres: Gujarat has 4 national parks and 11 sanctuaries. The game sanctuary at Gir, the sacred temples of Dwaraka and Somanath, Palitana, the picturesque mountain city of Jain Temples on about 2000 feet high Shetrunjaya hills, Udwada, the oldest place of the Fire temple of Parsees in India, the 5000-year-old archaeological finds at Lothal, the 11th century Sun Temples at Modhera, bird sanctuary at Nal Sarovar, architectural monuments of Indo-Saracenic style at Ahmedabad and other places, the national shrine of Mahatma Gandhi at Sabarmati Ashram,Ahmedabad, Saputara hills in South Gujarat are just a few of the varied attractions in the state.

Governor: Ram Krishna Trivedi. **Chief Minister:** Amarsinh Chaudhary (Congress).

HARYANA

Area: 44,212 sq km; **Capital:** Chandigarh; **Population:** 12,922,618; **Language:** Hindi; **Literacy:** 36.14%.

The State is bounded by UP in the east, Punjab in the west, Himachal Pradesh in the north and Rajasthan in the south. The Union Territory of Delhi juts into Haryana and is encompassed by it on three sides.

Physiography. Haryana can be divided into two natural areas, Sub-Himalayan terai and the Indo-Gangetic plain. The plain is fertile and slopes from north to south with a height above the sea level averaging between 700 and 900 ft. The south west of Haryana is dry, sandy and barren. Haryana has no perennial rivers like its parent state Punjab or its eastern neighbour UP. In this respect, it has more affinity to its southern neighbour, Rajasthan. The only river which flows through Haryana is the Ghaggar, which passes through the northern fringes of the state. This river identified by some historians as the river Drishavaditi of Vedic fame is not perennial. Rainfall is meagre, particularly in the districts of Mahendragarh and Hissar.

For most of the year, the climate of Haryana is of a pronounced character, very hot in summer and markedly cold in winter. The maximum termperature is recorded in the months of May and June when it goes upto as high as 46 degrees C. The temperature falls to the lowest in January.

There are two well-marked seasons of rainfall in the State: (i) the monsoon period failing from the middle of June till September on which autumn crops and spring sowing depend, and (ii) the winter rains which occur from December to February. The Dec.-Feb. rains, though often insignificant in quantity, yet materially affect the prosperity of the spring harvest.

History: Haryana has a proud history going back to the Vedic age. The state was the home of the legendary Bharata dynasty, which has given the name Bharat to India. Haryana is immortalised in the great epic *Mahabharata*. Kurukshertra, the scene of the epic battle between the Kauravas and the Pandavas, is situated in Haryana. The state continued to play a leading part in the history of India till the advent of the Muslims and the rise of Delhi as the imperial capital of India. Thereafter, Haryana has functioned as an adjunct to Delhi and practically remained anonymous till the first war of Indian independence in 1857 when the people of Haryana joined the leaders of the Indian revolt against the British Government.

When the rebellion was crushed and the British administration was reestablished, the Nawabs of Jhajjar and Bahdurgarh, the Raja of Ballabhgarh and Rao Tula Ram of Rewari of the Haryana region were deprived of their territories. Their territories were either merged with the British territories or handed over to the rulers of Patiala, Nabha and Jind. Haryana thus became a part of the Punjab province.

The modern State of Haryana came into being on November 1, 1966 as a result of the re-organization of the old Punjab State into two separate states. It was formed as a linguistic state, on the pattern of other states in India, the Hindi-speaking areas of Punjab having been assigned to it.

Administration: The legislature consists of only one house—the Legislative Assembly. There are 90 members in the Legislative Assembly (Vidhan Sabha).

The state is divided into 12 districts.

Districts

District	Area sq km	Population	Head-quarters
Ambala	3832	1409463	Ambala
Kurukshetra	3740	1130026	Kurukshetra
Karnal	3721	1322826	Karnal
Jind	3306	938074	Jind
Sonepat	2206	846765	Sonepat
Rohtak	3841	1341953	Rohtak
Faridabad	2150	1000859	Faridabad
Gurgaon	2716	849598	Gurgaon
Mahendragarh	3010	959400	Narnaul
Bhiwani	5099	920052	Bhiwani
Hissar	6315	1496534	Hissar
Sirsa	4276	707068	Sirsa

State of Economy: Agricultural development in Haryana has been tremendous since independence. The production of foodgrains, sugarcane (gur), oilseeds and cotton rose from 25.92 lakh tonnes, 5.10 lakh tonnes, 0.92 lakh tonnes and 3.05 lakh bales of 170 kg each in 1966-67 to 66.59 lakh tonnes, 6 lakh tonnes, 1.50 lakh tonnes and 5.50 lakh bales of 170 kg each respectively in 1982-83. Fertilizer consumption increased from 0.13 tonnes in 1966-67 to 2.72 lakh tonnes in 1982-83.

Haryana was the first state to introduce crop insurance scheme in north India. Dairy industry is also highly developed.

The major industries are cement, sugar, paper, cotton, textiles, glassware, brassware, cycles, tractors, motor cycles, time-pieces, automobile tyres and tubes, sanitaryware, television sets, steel tubes, hand tools, cotton yarn, refrigerators, vanaspati, ghee and canvas shoes. A factory of the Hindustan Machine

Tools producing tractors is located at Pinjore.

In all, in Haryana there are at present more than 42,000 small scale industrial units as well as 308 large and medium scale units. Exports rose to Rs. 150 crore in 1982-83.

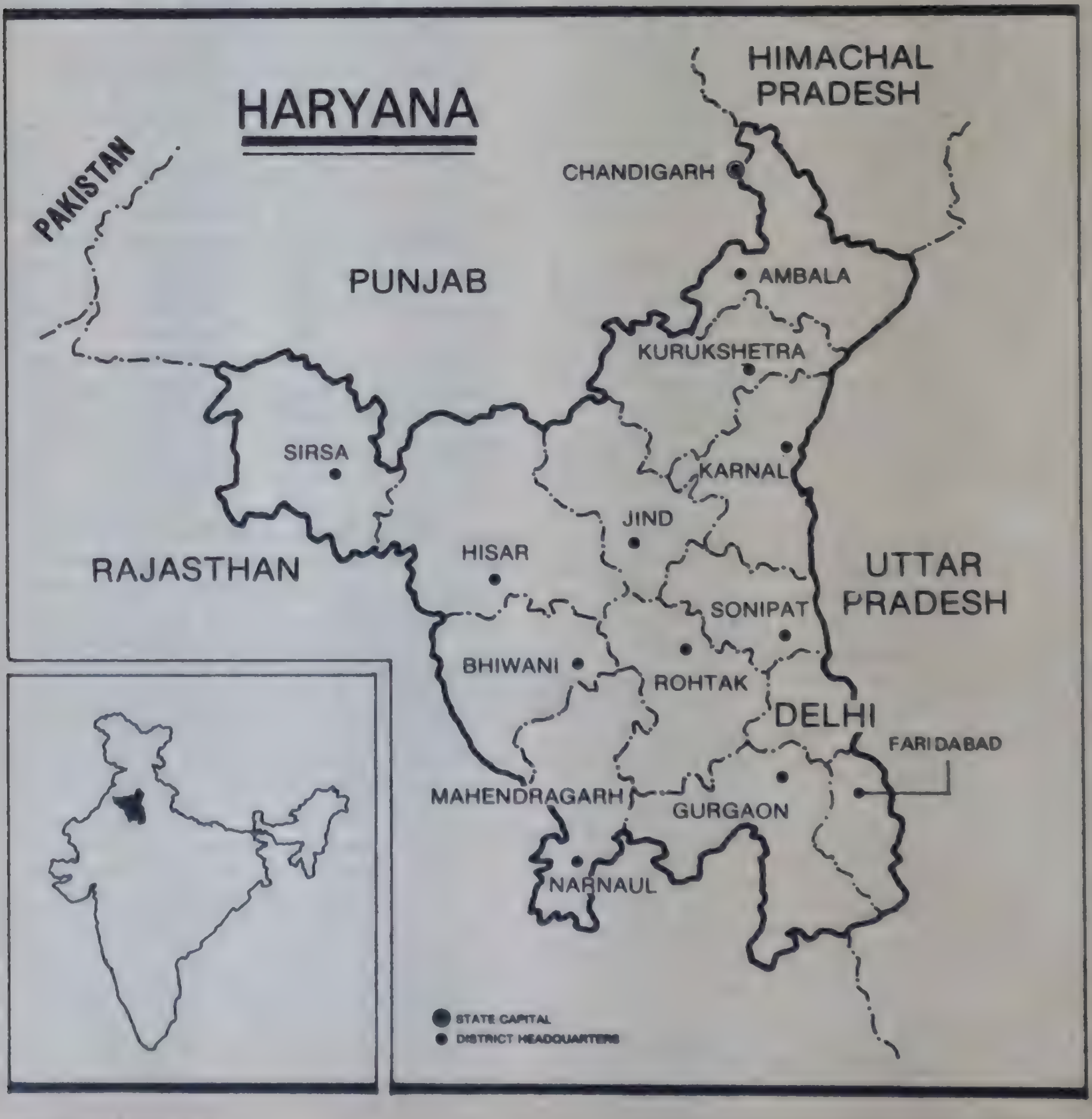
Tourist Centres. Raj Hans, Badkhal Lake, Surajkund, Dabchik, Sultanpur, Barbet, Sohna and Pinjore. Haryana has a network of 32 tourist complexes.

The Golden Triangle of India—Delhi-Agra-Jaipur, and other places of tourist interest in the north viz. the Kashmir Valley, Simla, Amritsar, Chandigarh and Bhakra-Nangal Dam hold great charm for potential tourists, both foreign and home. Haryana girdles Delhi from three sides with all the national highways to these tourist centres running through it.

'Hotel Raj Hans' stands above Surajkund and overlooks the Peacock Lake and bestows its comforts to foreign and domestic tourists coming to Delhi or Haryana.

Haryana Tourism has repeatedly won awards from the Pacific Area Travel Association and the Travel Agents Association of India.

Governor: S. M. H. Burney. **Chief Minister:** Devi Lal [Lok Dal (B)].


HARYANA
HIMACHAL PRADESH
PAKISTAN
CHANDIGARH
PUNJAB
AMBALA
KURUKSHETRA
SIRSA
KARNAL
JIND
HISAR
RAJASTHAN
UTTAR PRADESH
SONIPAT
BHIWANI
ROHTAK
DELHI
FARIDABAD
MAHENDRAGARH
GURGAON
NARNAUL
STATE CAPITAL
DISTRICT HEADQUARTERS

HIMACHAL PRADESH

rea: 55,673 sq km; **Capital:** Shimla; **Popula- on:** 4,280,818; **Language:** Hindi and Pahari; **iteracy:** 43%.

Himachal Pradesh became a fullfledged ate of the Indian Union on January 25, 1971. ith an area of 55,673 sq km it is larger than unjab, Haryana or Kerala, but in population it ands much below. Historically, the 18th state the Union, Himachal Pradesh is also the 3th in population (1981 census) but the 14th area.

hysiography: Himachal Pradesh is situated the north west corner of India, right in the p of the Himalayan ranges. It is surrounded Jammu and Kashmir in the north, Uttar radesh in the south east, Haryana in the south nd Punjab in the west. In the east, it forms ndia's boundary with Tibet.

The state is almost entirely mountainous ith altitudes ranging from 460 to 6600 metres bove sea level. It has a deeply dissected pography, a complex geological structure nd a rich temperate flora in sub-tropical titudes.

Physiographically, the state can be divided to two regions, southern and northern. The uthern part of Himachal Pradesh is almost as ot as the plains, while the northern region as a temperate summer and a winter with treme cold and heavy snowfall. The districts Shimla and Sirmaur have alluvial soil, while e remaining ten districts have forest and hill ils. The normal rainfall of Himachal Pradesh 181.6 cm. Maximum rainfall is noticed at harmasala in Kangra district.

Himachal Pradesh is drained by a number of vers, the most important of which are henab, Ravi, Beas, Sutlej and Yamuna. All ese rivers are snow-fed and hence perennial. esides, the natural reservoirs and the large ops available in the river courses provide mense potential for hydel power genera- on at low cost.

istory: Himachal Pradesh was originally rmed as a centrally-administered territory April 15, 1948 by the integration of some irty and odd Punjab hill states. In 1951, it came a 'Part C' state Under a Lt. Governor, th a Legislative Assembly of 36 members and a Cabinet of three ministers. In 1954, Bilaspur, another 'Part C, state was merged with Himachal Pradesh and the strength of the Assembly was raised to 41 members.

In 1956, the States Re-organization Commission recommended the merger of Himachal Pradesh with Punjab. But the people of Himachal Pradesh so stoutly opposed the merger that it was not put into effect.

Till October, 1966 Himachal Pradesh consisted of only six hill districts—Mahasu, Mandi, Chamba, Sirmaur, Bilaspur and Kinnaur. In November, 1966, it was enlarged by the addition of some of the hilly areas of Punjab—Shimla, Kangra, Kulu, Lahaul and Spiti districts and the Nalagarh tehsil of Ambala district and areas of Hoshiarpur and Gurdaspur districts.

Himachal Pradesh was re-organized into 10 districts and declared a state on January 25, 1971 with Shimla as its capital. In 1972-73, the districts were reshuffled bringing up their number to 12.

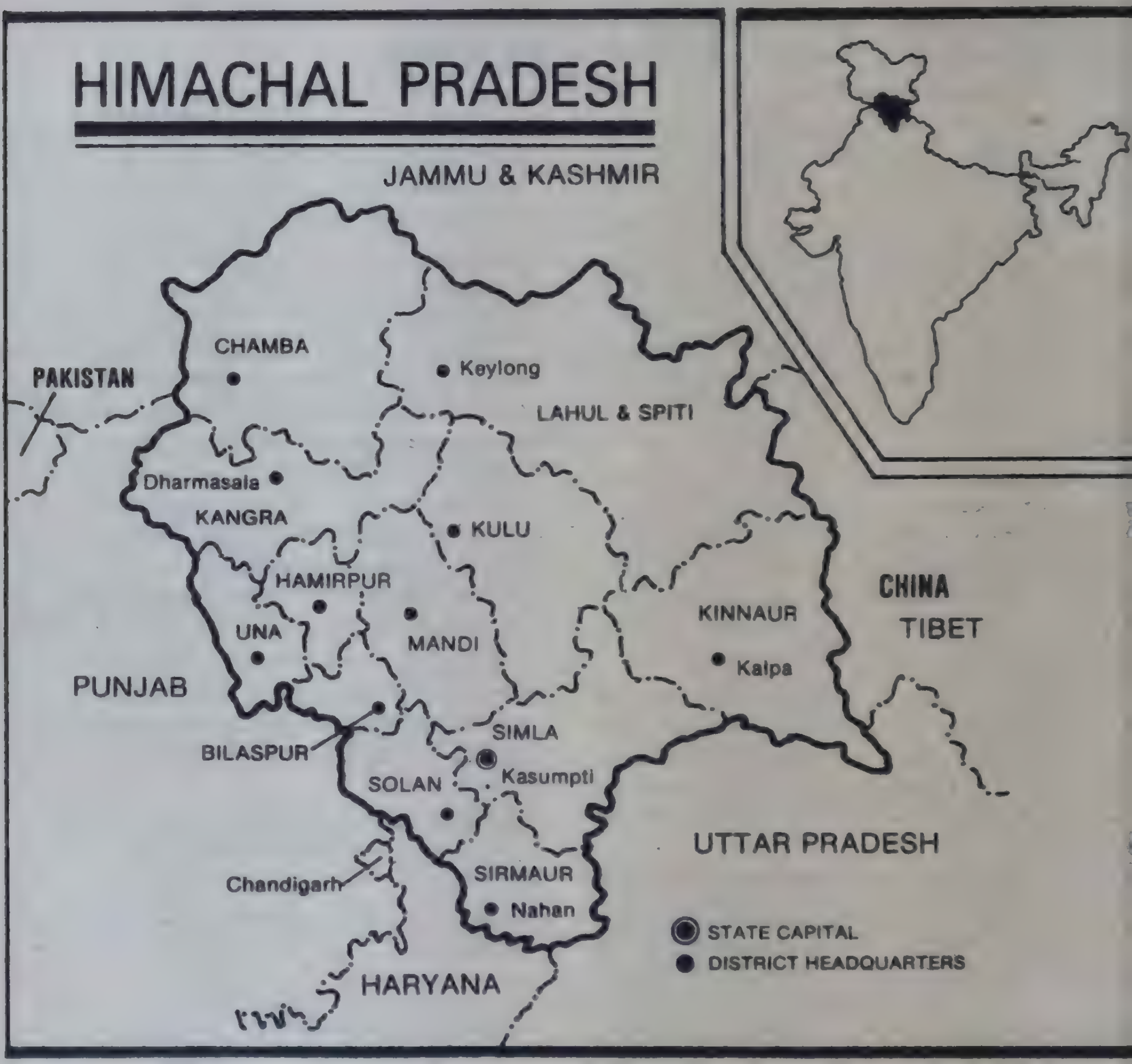
Administration: There is only one house of legislature, i.e., Vidhan Sabha, with 68 members.

The state is divided into the following 12 districts.

Districts

District	Area (sq km)	Population 1981	Density per (sq km)
Bilaspur	1167	247368	212
Chamba	6528	311147	48
Hamirpur	1118	317751	284
Kangra	5739	990758	173
Kinnaur	6401	59547	9
Kulu	5503	238734	43
Lahaul & Spiti	13835	32100	2
Mandi	3950	644827	163
Shimla	5131	510932	100
Sirmaur	2825	306952	109
Solan	1936	303280	157
Una	1540	317422	206

State of Economy. Agriculture and horticulture are the mainstay of Himachal's economy as 76 per cent of people are engaged in these pursuits. Irrigated area forms 26 per cent of the net area sown. However, the agroclimatic conditions in the state are more suitable for


HIMACHAL PRADESH
JAMMU & KASHMIR
PAKISTAN
CHAMBA
Keylong
LAHUL & SPITI
Dharmasala
KANGRA
KULU
HAMIRPUR
UNA
MANDI
KINNAUR
Kalpa
CHINA
TIBET
PUNJAB
BILASPUR
SIMLA
Kasumpti
SOLAN
SIRMAUR
Nahan
Chandigarh
UTTAR PRADESH
HARYANA
STATE CAPITAL
DISTRICT HEADQUARTERS

growing a wide variety of fruits and cash crops like seed potatoes, ginger, vegetable seeds, apples, stone fruits, etc. Wheat, maize and paddy are the major cereal crops under cultivation. The production of food grains during 1984-85 was about 12.9 lakh tonnes as against 7.01 lakh tonnes during 1966-67 when the state was reorganized.

The state continues to be industrially backward despite vast natural resources endowment and plentiful availability of cheap hydel power. At the end of 1984-85, there were about 7000 small scale industrial units in organized sector employing about 42,000 persons besides numerous cottage and village industrial units. The commissioning of the most modern and sophisticated fruit processing plant at Parwanoo with a capital outlay of about Rs. 4.00 crore has been a landmark the history of fruit processing in India.

As a result of various concessions/inc tives, the pace of industrialization picked and 58 medium and large scale projects w approved. Among major and medium ind tries are Nahan Foundry, Nahan; Resin a Turpentine factories at Nahan and Bilasp Mohan Meakin Breweries, Solan and Uni Diamonds Ltd., Parwanoo. District Industr Centres in all the 12 districts are functioni An Electronics Development Corporation been set up in the state and electronics esta are being set up.

Tourist Centres: Himachal Pradesh is st ded with a number of hill stations which refreshingly cool in summer. They offer to tourists a quick holiday amidst breath-tak cenery. Shimla, Dalhousie, Dharmasala, Kulu, asauli, Solan, Chail and Kufri are some of the mous hill stations.

Himachal Pradesh abounds in wild life mong which are some rare species like musk eer, ibex, thar, Himalayan brown bear and now leopard among animals and monal, tragopan, kokiash and snowcocks among birds. The rivers offer ideal fishing grounds for trout in Katrain, Rohru and Barot and for masheer in Maryoga, Karganuand and Dedahu.

Governor: Vice Admiral R.K.S. Gandhi (Rtd.) **Chief Minister:** Vir Bhadra Singh (Congress).

JAMMU & KASHMIR

rea: 2,22,236; **Capital:** Srinagar (Summer) mmu (Winter); **Population:** 5,987,389; **Lan- uages:** Urdu, Kashmiri, Dogri, Ladakhi, etc.; **lteracy:** 26.17%.

hysiography: The state lies in the extreme orth of the country and is bounded on the orth by China, on the east by Tibet and on the outh by Himachal Pradesh, Punjab and Pakis- n. The official language is Urdu.

listory: The State of Jammu and Kashmir hich had earlier been under Hindu rulers nd Muslim sultans, became part of the lughal Empire under Akbar. After a period of fghan rule from 1756, it was annexed to the kh kingdom of the Punjab in 1819. In 1846 anjit Singh made over the territory of Jammu Maharaja Gulab Singh. After the decisive attle of Sabroon in 1846 Kashmir also was ade over to Maharaja Gulab Singh under the reaty of Amritsar. British supremacy was ecognized until the Indian Independence Act 947.

When all the states decided on accession to ndia or Pakistan, Kashmir asked for stand-still greements with both. In the meantime, the ate became the subject of an armed attack om Pakistan and Maharaja acceded to India n 26th October, 1947 by signing the instru- ents of accession. India approached the U.N. January, 1949. Another round of war be- veen the two countries in 1965 was followed the Tashkent Declaration in January 1966.

Following the liberation movement in the rmer eastern wing of Pakistan, Pakistan tacked India in December, 1971. It was llowed by the Shimla Agreement in July, 972. A new line of control was delineated laterally to replace the cease-fire line be- veen the two countries in Jammu and ashmir.

The Maharaja's son Yuvraj Karan Singh took er as Regent in 1950 and on the ending of hereditary rule (17th October, 1952) was sworn in as a Sadar-i-Riyasat. On his father's death (26th April, 1961) Yuvraj Karan Singh was recognized as Maharaja by the Indian Government. He decided, however, not to use the title.

Administration: The Constitution of the state came into force in part on 17th November, 1956 and fully on 26th January, 1957. The constitution provides for a bicameral Legislature (i) the Legislative Assembly (2) the Legislative Council.

The State comprises 14 districts of which 6 each fall in Jammu and Kashmir provinces and two in Ladakh region.

Districts

District	Area (sq km)	Population	Head-quarters
1. Anantnag	3,984	6,56,351	Anantnag
2. Badgam	1,371	3,67,262	Badgam
3. Baramula	4,588	6,70,142	Baramula
4. Doda	11,691	4,25,262	Doda
5. Jammu	3,097	9,43,395	Jammu
6. Kargil	14,036	65,992	Kargil
7. Kathua	2,651	3,69,123	Kathua
8. Kupwara	2,379	3,28,743	Kupwara
9. Ladakh	82,665*	68,380	Leh
10. Pulwama	1,398	4,04,078	Pulwama
11. Poonch	1,674	2,24,197	Poonch
12. Rajauri	2,630	3,02,500	Rajauri
13. Srinagar	2,228	7,08,328	Srinagar
14. Udhampur	4,550	4,53,636	Udhampur

* Includes 37,555 sq. km. under illegal occupation by China.

State of Economy: Agriculture is the mainstay of the State's economy, as about 80 per cent of the population depend on it. Paddy, wheat and maize are the major crops. Barley, bajra and jowar are cultivated in some parts. Gram is grown in Ladakh.

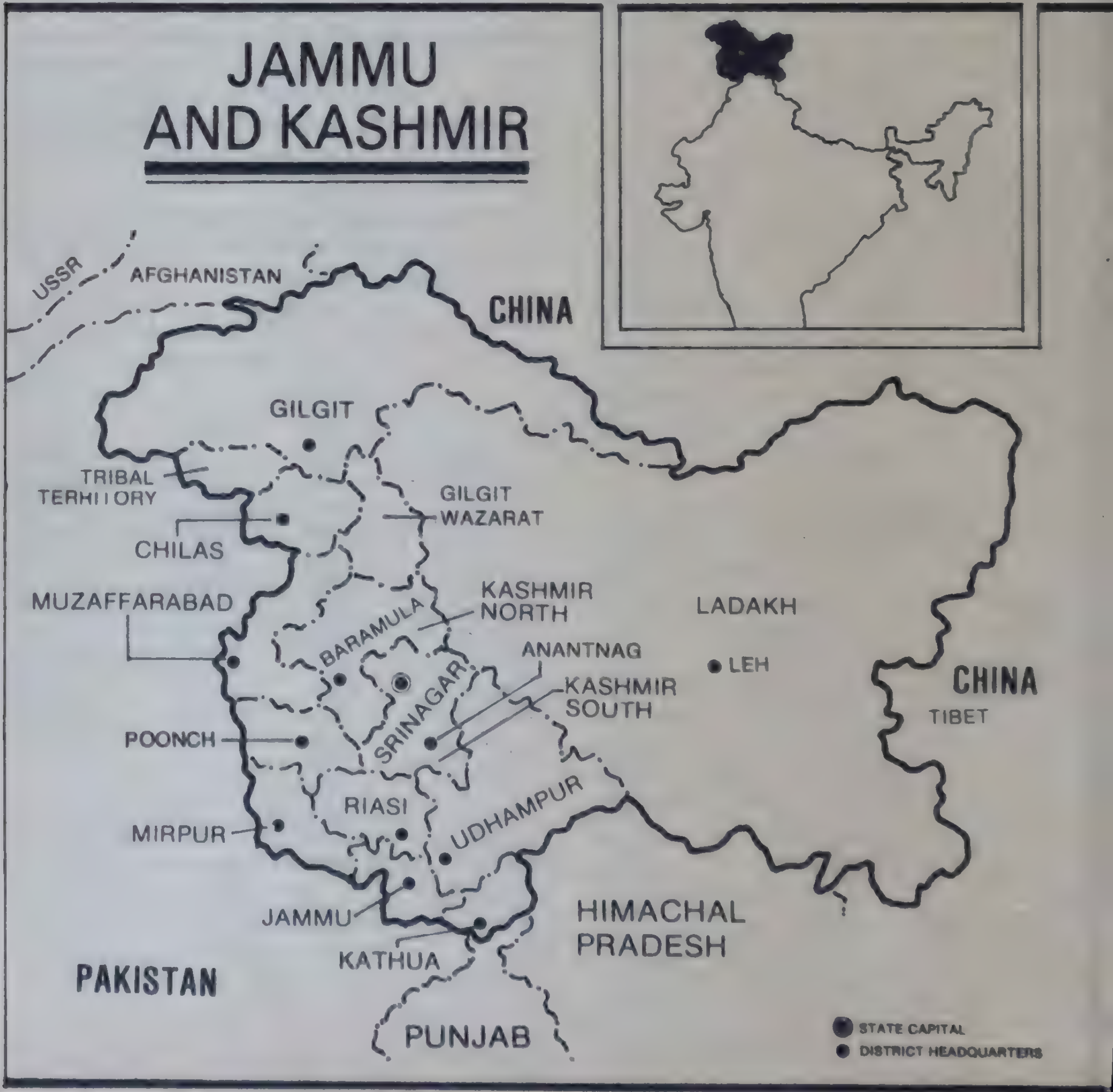
Area targeted to be covered under high-yielding varieties in 1986-87 is 2.60 lakh hectares under paddy, 2 lakh hectares under wheat, and about 80,000 hectares under maize. Food grains production is expected to reach 14.43 lakh tonnes in 1986-87 from 12.46 lakh tonnes in 1984-85.

In the small scale sector the number of industrial units registered had crossed the 14921 mark providing employment to about 69,000 people upto the end of March 1984.

The State Government accords high priority to the development of handicrafts and handlooms sectors. Kashmir handicrafts have always been a byword for excellence. The tradition of crafting papier mache, wood carving, carpet and shawl making etc. is very old in Kashmir. This sector provides employment to about 1.7 lakh people. Kashmi handicrafts particularly carpets earn substan tial foreign exchange for the country. I 1985-86 Kashmir handicrafts worth Rs. 40.0 crore were exported.

Tourist Centres: Kashmir is the paradise fo tourists, both international and domestic. Mai centres of attraction are Srinagar, Pahalgam Gulmarg, Sonamarg, etc. Among places c pilgrim interest are Amarnath and Vaishn Devi.

The tourist industry in the state has reg istered a phenomenal growth during the pa decade. During 1975-76, over Rs. 60 lakh wer spent on this sector and in 1984-85 pla expenditure was about 550 lakh. In th


JAMMU AND KASHMIR
USSR
AFGHANISTAN
CHINA
GILGIT
TRIBAL TERRITORY
GILGIT WAZARAT
CHILAS
MUZAFFARABAD
KASHMIR NORTH
BARAMULA
LADAKH
ANANTNAG
LEH
SRINAGAR
KASHMIR SOUTH
CHINA
TIBET
POONCH
RIASI
UDHAMPUR
MIRPUR
JAMMU
HIMACHAL PRADESH
KATHUA
PAKISTAN
PUNJAB
● STATE CAPITAL
● DISTRICT HEADQUARTERS

Seventh Plan an outlay of Rs. 2250 lakh has been approved.

Governor: Jagmohan, **Chief Minister:** Farooque Abdulla (National Conference).

KARNATAKA

Area: 1,91,791 sq km; **Capital:** Bangalore; **Population:** 3,71,35,714; **Language:** Kannada; **Literacy:** 38.5%.

Karnataka is the eighth largest state in India both in area and population. It was formerly known as Mysore. On November 1, 1973 the name *Mysore* was changed to *Karnataka* under The Mysore State (Alteration of Name) Act 1973.

The change is much more than a change in nomenclature. It is the revival of a great image of the region which, under the name of Karnataka, had attained glorious heights in history.

Physiography: Karnataka is situated on the western edge of the Deccan plateau and has for its neighbours Maharashtra and Goa on the north, Andhra Pradesh on the east and T.Nadu and Kerala on the south. On the west, it opens out on the Arabian Sea.

Physiographically, the state can be divided into four regions: (1) The Coastal Region, (2) the Malnad, (3) the Northern plains and (4) the Southern plains.

The two important river systems of Karnataka State are the Krishna and its tributaries (Bhima, Ghataprabha, Malaprabha, Tungabhadra and Vedavati) in the north, and the Kaveri and its tributaries (Hemavati, Shimsha, Arkavati, Lakshmana Thirtha and Kabini) in the south.

Both these rivers flow eastward and fall into the Bay of Bengal, the Krishna passing through Andhra Pradesh and the Kaveri traversing Tamil Nadu.

A number of smaller rivers flow westward into the Arabian Sea. Of these Sharavati, Kalinadi and Netravati are important to Karnataka. They are being tapped for hydro-electric power.

As most of these rivers pass through other states notably Andhra Pradesh, Kerala and T.Nadu, there are frequent disputes about water rights between Karnataka and the other states.

History: The name Karnataka is derived from Karunadu, literally, lofty land. As much of Karnataka is high plateau land, the name is entirely justified. The history of Karnataka goes back to the dim days of the epics. The capital of Bali and Sugreeva, 'monkey kings' of the Ramayana, is said to have been Hampi in Bellary district. Vatapi, associated with the Sage Agastya, is obviously Badami in Bijapur district.

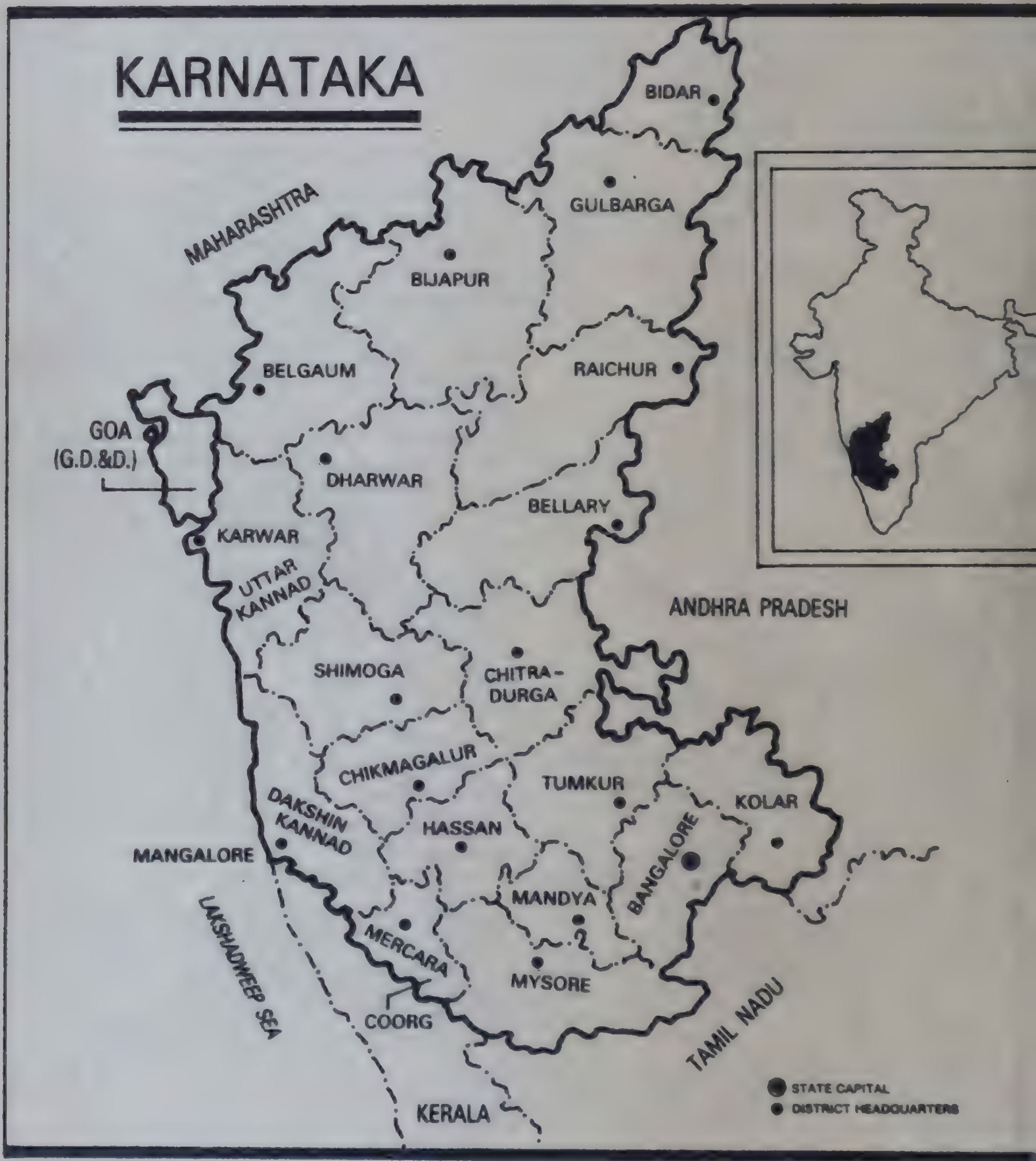
In the 4th century B.C. Karnataka was part of the great Mauryan Empire. Siwamagiri (Kanakagiri in Raichur district) is said to have been the southern capital of the Mauryas. About 30 B.C. a local dynasty, Satavahana, came to power. The Satavahana Empire lasted nearly 300 years. With the disintegration of the Satavahana dynasy, the Kadambas came to power in the north, and the Gangas in the south. The gigantic monolithic statue of Gomateswara at Sravanabelagola is considered to be a monument of the Ganga period.

By the beginning of the sixth century A.D., the Chalukyas established a new empire. After the Chalukyan empire, the Yadavas of Devagiri and the Hoysalas of Dwarasamudra divided Karnataka between them.

In the 14th century, the great Vijayanagar empire was established. It was an age of glory and prosperity. A confederation of the Muslim sultans of the Deccan destroyed the Vijayanagar Empire in 1565 (Battle of Talikota). The vast ruins at Hampi, near Hospet, remain to-day as sombre reminders of Vijayanagar glory.

In 1399 A.D. Yaduraya, the ruler of a small principality, Mysore, founded the Wodeyar dynasty. Raja Wodeyar (A.D. 1578—1612) enlarged the principality into a mighty kingdom, with Srirangapatanam as his capital. The Wodeyars were overthrown by Hyder Ali, the intrepid Muslim general of Mysore. With the defeat of Tippu, the son of Hyder Ali, by the British, the Wodeyars were restored to power as a feudatory of the British.

During British rule, the Karnataka area was distributed among the Princely States of Mysore, Hyderabad, and the British provinces of


KARNATAKA
BIDAR
GULBARGA
MAHARASHTRA
BIJAPUR
BELGAUM
RAICHUR
GOA
(G.D.&D.)
DHARWAR
BELLARY
KARWAR
UTTAR KANNAD
ANDHRA PRADESH
SHIMOGA
CHITRA-DURGA
CHIKMAGALUR
TUMKUR
KOLAR
DAKSHIN KANNAD
HASSAN
BANGALORE
MANGALORE
MANDYA
LAKSHADWEEP SEA
MERCARA
MYSORE
COORG
TAMIL NADU
KERALA
STATE CAPITAL
DISTRICT HEADQUARTERS

Bombay and Madras and the small principality of Coorg.

The formation of the present State represents the fulfilment of the age-old aspirations of Kannada-speaking people to come together in a single state. The old Kingdom of Mysore formed the nucleus of this new state. Under the States Reorganization Act, the Kingdom of Mysore gathered around itself in 1956 the districts of Kanara, Bijapur, Dharwar and the major portion of Belgaum district in t Gulbarga, Raichur and Bidar districts, from t princely State of Hyderabad, the South Kana district (excluding Kasargod Taluk and Kolle al taluk in Coimbatore district) from the c Madras Presidency and the whole of the 'P. C' State of Coorg.

Administration: The Legislature is made of two houses, the Legislative Assembly of 2 members and the Legislative Council of members.

The state is divided into 20 districts.

Districts

District	Area in (sq km)	Population	Head quarters
Bangalore	8005	4947610	Bangalore
Bangalore Rural	—	—	Bangalore
Belgaum	13415	2980440	Belgaum
Bellary	9885	1489225	Bellary
Bijapur	17069	2401782	Bijapur
Bidar	5448	995691	Bidar
Chickmagalur	7201	911769	Chickmagalur
Chitradurga	10852	1777499	Chitradurga
Dakshina Kannada	8441	2376724	Mangalore
Dharwad	13738	2945487	Dharwar
Gulbarga	16224	2080643	Gulbarga
Hassan	6814	1357014	Hassan
Kodagu	4102	461888	Madikeri
Kolar	8223	1905492	Kolar
Mandya	4961	1418109	Mandya
Mysore	11954	2595900	Mysore
Raichur	14017	1783822	Raichur
Shimoga	10553	1656731	Shimoga
Tumkur	10598	1977854	Tumkur
Uttara Kannada	10291	1072034	Karwar

State of Economy: Karnataka is predominantly rural and agrarian. About 76 per cent of its population lives in rural areas while about 71 per cent of its working force is engaged in agriculture and allied activities which generate 49 percent of the state income.

Among the food crops, Karnataka accounts for 47 per cent of the country's ragi production. The share of other crops in the country's production is: Jowar—16 per cent, small millets—10 per cent, tur—9 per cent, maize—7 per cent and rice and bajra—5 per cent each.

Among non-food crops, coffee is the most important as it accounts for 59 per cent of the country's coffee production. Other crops are: cardamom, arecanut, safflower, coconut, cotton, groundnut, chillies, castorseed, sugarcane and tobacco.

There are a number of big industries. Machine tools, aircraft, electronic products, watches and telecommunication equipment are some of the items produced. Important Union Government undertakings engaged in the production of these items are Hindustan Aeronautics, Hindustan Machine Tools, Bharat Earth Movers, Bharat Electronics, Indian Telephone Industries and National Aeronautical Laboratory. The state-owned Viswesvaraya Iron & Steel Ltd., Bhadravathi, produces special steel and alloy steel.

Kudremukh Iron Ore Project is another major development project. Karnataka accounts for 85 per cent of the raw silk produced in the country. Apart from silk, its sandal soap and sandal oil are well known in world markets. The third naval base in India with an outlay of Rs. 2000 crores is being set up at Karwar.

Tourist Centres: Garden city of Bangalore has been adjudged the cleanest city in India more than once. A trip from Bangalore to Mysore, the capital of the Wodeyars via Srirangapatnam, the capital of Tippu Sultan, is quite rewarding.

Mysore city is famous for the Dussehra festival during September-October. The famous Krishnaraja Sagar dam and Vrindavan gardens are nearby.

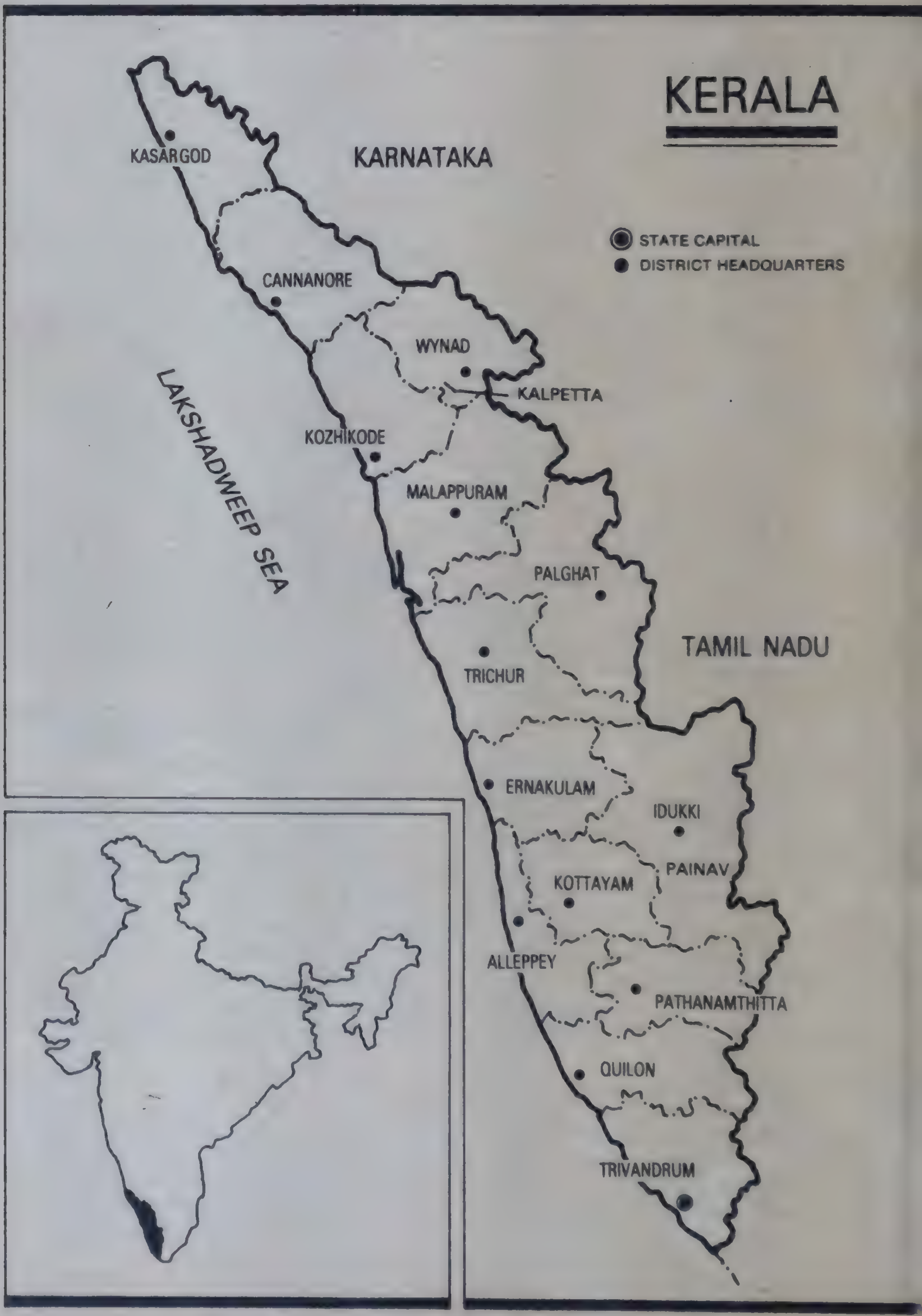
Among the natural parks is Bandipur Wild life Sanctuary, 80 km south of Mysore. Belur, on the bank of river Yagachi, was once the flourishing capital of Hoysala Empire. Sravanabelagola where the 18-metre statue of Gomateswara stands is a Jain pilgrim centre. Jerosoppa (Jog Falls) is—world famous.

Governor: Ashok Nath Banerjee. **Chief Minister:** Rama Krishna Hegde (Janata).

KERALA

Area: 38,863 sq km; **Capital:** Trivandrum; **Population:** 25,453,680; **Language:** Malayalam; **Literacy**: 69.17%.

Kerala is a small state, tucked away in the south west corner of India. It has an area of 38,863 sq km which represents only 1.18 per cent of the total area of India. But it supports a population of 25,453,680 which is 3.71 per cent of the total population of the country (1981). The disproportion between its area and population is reflected in the density—which in 1981 was 655 persons to the sq km This is the highest density among the states of the Union, higher densities being registered only by four union territories—Delhi-4178, Chandigarh-3948, Laccadive, Minicoy and Amindivi Islands, (now Lakshadweep)-1257 and Pondicherry-1228.


KERALA
STATE CAPITAL
DISTRICT HEADQUARTERS
KARNATAKA
KASARGOD
CANNANORE
WYNAD
KALPETTA
KOZHIKODE
LAKSHADWEEP SEA
MALAPPURAM
PALGHAT
TRICHUR
TAMIL NADU
ERNAKULAM
IDUKKI
PAINAV
KOTTAYAM
ALLEPPEY
PATHANAMTHITTA
QUILON
TRIVANDRUM

Not For The Average But For The Excellence

Dr. U. R. Anantha Murthy

All births are painful, and so, I am told, was the birth of Gandhiji University. I realize now growing up too is a painful and exacting process. Life's mystery lies in the fact that we seek after the pain, which transforms itself into a joy.

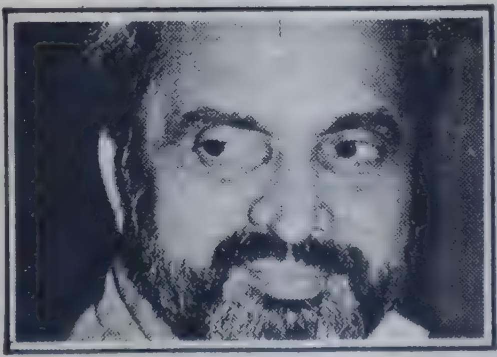
You must be familiar with the expression 'Town' and 'Gown'. In some ancient universities like Oxford, Cambridge *and* Heidelberg *'Gown' is almost the 'Town' and even overwhelms the 'Town.' Such is not the case in Kottayam. Here the 'Town' is kind, very courteous to us and very understanding — but more powerful than us.*

But I am hopeful that it will nurture a warm and generous atmosphere in the university — where the young can grow-up to discriminate the really excellent form the average. For society which doesn't care for the excellence and opts for the safe average has no future. Caring for excellence means hard work — yogo karmasu kaushalam *— and refusal to buckle under the pressure of the average.*

I appeal to the student world with the upanishadic *prayer:* Saha Viryam Karava vahai *— Let the student and the teacher together evolve the truly liberating power of* Jnana. *For* Jnana *is the fruit of a dialogue between the teacher and the taught.*

So far as education is concerned, Kerala has on the whole reached a level above anything you may find anywhere in India. It is certainly above average. But one should not be satisfied with this achievement because average is also mediocre. The university should aim at great centres of excellence.

The everyday world has its stresses and strains, its immediate imperatives — but a university is a place where you can dream, play with ideas, make projections into the future, withdraw for a while from the pragmatic pressures of life only to face them with renewed vigour and creativity. It is a space that all living cultures create for themselves for their own continuous rejuvenation.



The student's education will continue even after he leaves the university. I must add that it is not merely in the class-room that this is done. It is generally agreed that it is also done in the libraries and in the laboratories. But not merely here — it should continue in the lobbies of the hostels where students live, and cafetarias which they haunt, and the trees under which heavy lounge. It should pervade the whole atmosphere of the university. That is my dream for the campus of my university.

(Excerpt from the speech made on the occasions of opening the new campus for Gandhiji University, Kottayam, where he is presently Vice Chancellor).

Physiography: Kerala may be divided into three geographical regions: (1) Highlands, (2) Midlands and (3) Lowlands. The Highlands slope down from the Western Ghats which rise to an average height of 3000 feet, with a number of peaks well over 6000 feet in height. This is the area of major plantations like tea, coffee, rubber, cardamom and other spices.

The Midlands, lying between the mountains and the Lowlands, is made up of undulating hills and valleys. This is an area of intensive cultivation. Cashew, coconuts, arecanuts, tapioca, bananas, rice, ginger, pepper, sugarcane and vegetables of different varieties are grown in this area.

The Lowlands or the coastal area, which is made up of the river deltas, backwaters and the shore of the Arabian sea, is essentially a land of coconuts and rice. Fisheries and coir industry constitute the major industries of this area.

Kerala is a land of rivers and backwaters. Forty-four rivers (41 west-flowing and 3 east-flowing) cut across Kerala with their innumerable tributaries and branches, but these rivers are comparatively small and being entirely monsoon-fed, practically turn into rivulets in summer, especially in the upper areas.

The backwaters form a specially attractive and economically valuable feature of Kerala. They include lakes and ocean inlets which stretch irregularly along the coast. The biggest backwater is the Vembanad lake, some 80 sq miles in area, which opens out into the Arabian Sea at Cochin port. The Periyar, Pamba, Manimala, Achenkovil, Meenachil and Moovattupuzha rivers drain into this lake. The other important backwaters are Veli, Katinamkulam Anjengo, Edava, Nadayara, Paravoor, Ashtamudi (Quilon), Kayamkulam, Kodungallur (Cranganore) and Chetuva. The deltas of the rivers interlink the backwaters and provide excellent water transportation in the low-lands of Kerala. A navigable canal, 228 miles long, stretches from Trivandrum, the capital of Kerala, to Tirur in the far north.

History: When India became free, Kerala was made up of two princely states, Travancore and Cochin, and Malabar was under the direct administration of the British. One of the first steps taken by independent India was to amalgamate small states together so as to make them viable administrative units.

In pursuance of this policy the Travancore and Cochin states were integrated to form Travancore-Cochin State on Ist July, 1949. But Malabar remained as part of the Madras Province. Under the States Re-organization Act of 1956, Travancore-Cochin State and Malabar were united to form the State of Kerala on Ist November, 1956.

Some territorial adjustments had necessarily to be made on re-organization. In this adjustment, Kerala lost to Madras (now Tamil Nadu) the taluks of Thovala, Agasteeswaram, Kalkulam and Vilavancode in the far south and Shencotta in the east, while it gained the Malabar district and the Kasargod taluk of South Kanara district in the north. The Laccadive, Minicoy and Amindivi islands lying off the coast of Malabar were detached from Kerala and declared as Union Territory.

Administration: The state has a unicameral legislature. The Legislative Assembly has 141 members.

The state is divided into 14 districts.

Districts

Districts	Area	Population	Head-quarters
Trivandrum	2186.00	2,596,112	Trivandrum
Quilon	2687.50	2,192,901	Quilon
Alleppey	1360.58	1,865,580	Alleppey
Pathanam-thitta	2518.98	1,107,658	Pathanam-thitta
Kottayam	2195.50	1,697,442	Kottayam
Idukki	5149.62	969,292	Painav
Ernakulam	2358.19	2,535,294	Ernakulam
Trichur	2993.90	2,439,543	Trichur
Palghat	4389.80	2,044,399	Palghat
Malappuram	3632.30	2,402,701	Malappuram
Kozhikode	2333.30	2,245,265	Kozhikodu
Wyanad	2125.60	554,026	Kalpetta
Cannanore	2968.00	1,930,223	Cannanore
Kasargod	1961.30	872,741	Kasargodu

State of the Economy: Kerala with its high population presents complex problems in the sphere of food, employment and housing. The state is 50 per cent short of food. Owing to historical and climatic reasons the state has developed commercial agriculture more than food crops. Consequently, the state is short of foodgrains, especially rice which is the staple food of the people.

Kerala has a unique cropping pattern. It

Kerala's Seesaw Politics

Nov. 1, 1956: Birth of Kerala.

Mar, 1957: First Assembly Election.

April 5, 1957: E.M.S. ministry (Communist) sworn in.

July 31, 1959: E.M.S. ministry dismissed.

Feb. 1960, Election to the Assembly.

Feb. 22, 1960: Pattom Thanu Pillai ministry sworn in (Congress).

Sept. 25, 1962: (Pattom appointed Governor of Punjab.

Sept. 26, 1962: R. Sankar ministry sworn in (Congress).

Sept. 10, 1964: Sankar ministry goes.

Mar. 1965: Assembly election (infructuous).

Feb. 1967: Election to the Assembly.

March 6, 1967: Second E.M.S. ministry sworn in (Communist).

Oct. 24, 1969: E.M.S. ministry goes.

Nov. 1, 1969: Achutha Menon ministry in (Left United Front).

June 26, 1970: Assembly dissolved.

Aug. 1, 1970: Achutha Menon ministry resigns.

Sept. 1970: Assembly Election.

Oct. 4, 1970: Second Achutha Menon ministry in.

Mar. 1977: Election to the Assembly.

Mar. 25, 1977: Karunakaran ministry sworn in (Congress).

April 25, 1977: Karunakaran resigns.

April 27, 1977: A. K. Antony sworn in Chief Minister (Congress).

Oct. 27, 1978: Antony resigns.

Oct. 29, 1978: P. K. Vasudevan Nair ministry sworn in (Left United Front).

Oct. 7, 1979: Vasudevan Nair goes.

Oct. 11, 1979: C. H. Mohammed Koya ministry sworn in (Right United Front).

Dec. 1, 1979: Mohammed Koya goes.

Jan. 1980: Election to the Assembly.

Jan. 25, 1980: E. K. Nayanar ministry sworn in (Left United Front).

Oct. 20, 1981: Nayanar ministry goes.

Dec. 28, 1981: Karunakaran ministry sworn in (United Democratic Front).

Mar. 17, 1982: Karunakaran ministry resigns.

May 19, 1982: Assembly Election.

May 24, 1982: Karunakaran ministry sworn in (United Democratic Front).

March 23, 1987 Assembly election.

March 26, 1987 E. K. Nayanar Ministry takes over (Left Democratic Front).

ccounts for 92 per cent of India's rubber, 70 er cent of cardamom, 70 per cent of coconut, 0 per cent of arecanut, 70 per cent of pepper, 0 per cent of tapioca and almost 100 per cent f lemon grass oil. Kerala is the single largest roducer of a lot of other crops like bananas nd ginger, besides tea and coffee in abundnce.

While the state's economy continued to uffer from the adverse effect of the unpreedented drought of 1982 devastating rains nd floods played havoc with her economy in 985-86 and drought in 1986-87. Both producon and productivity of almost all the major rops in the state suffered as a result of natural isurbances, the crops most affected being oconut, cardamom, pepper and coffee.

However, agricultural production went up harply in 1983-84 and continued to increase odestly in 1985-86.

**Rubber:* Production increased from 162212 tonnes in 1983-84 to 1,84,700 tonnes in 1985-86. Area of cultivation is 3,62,500 hectares. This is 88.24 per cent of India's total of 3,19,900 hectares.

**Coffee:* Coffee plantations in Kerala were devastated by the drought compared to coffee plantations elsewhere in the country where the effects of drought were less severe. In 1984-85 coffee was grown in 65,641 hectares. (Production 35,565 tonnes). This is 35.74% of the total area of coffee cultivation in the country. In 1985-86 the production was 23,640 tonnes only. In 30 years coffee production in the state increased more than seven times. Coffee export from the state in 1985-86 was 46,373 tonnes (Rs. 128.42 crore).

**Tea.* Despite the severe drought and power cut tea production in Kerala improved. In 1984-85 tea was grown in 35021 hectares

(8.84% of India's total). Total production in 1985 was 52,387 tonnes (12.54% of India's total).

**Cardamom.* The production and yield of cardamom were severely affected by the prolonged drought. But in 1985-86 production rose to 3340 tonnes from 1100 tonnes in 1983-84. Total export earning in 1985-86: Rs. 49.20 crore (90% of India's total).

In the industrial sector, the power cut imposed consequent to drought, continued to affect activities during the last few years. Total Industrial production during 1985-86 was to the tune of Rs. 880.87 crore. There were 11131 registered factories in the state and the total work force in these factories was 292629 in 1985.

Tourist Centres: Under the aegis of the Department of Tourism and Kerala Tourism Development Corporation, many places in Kerala have been developed into tourist centres.

Trivandrum, the capital city had been once the cleanest city in India. It is an abode temples, mosques and churches. Kovala Beach Resort is 12 km from there. Neyyar Da (19 km), Ponmudi (61 km) and Padmanabh puram Palace (53 km) are other places interest.

Periyar Wild Sanctuary at Thekkady in Idu ki District is another attraction. Sabarima abode of Lord Ayyappan, is a famous pilgri centre in Pathanamthitta Dist.

Cochin is known as the 'Queen of t Arabian Sea'. The beautiful Willingdon Islai with the adjoining port is a great attractic Kalady in Ernakulam District is the birthpla of Sri Sankaracharya. Guruvayur in Trich Dist. has the famous Lord Krishna shrir Kalamandalam, the renowned Kathakali Ce tre is in Trichur Dist. Calicut is historica important as the capital of the Zamori Edakal cave in Wyanad district is centuries o

Governor: P. Ramachandran. **Chief Min ter:** E. K. Nayanar (CPM).

MADHYA PRADESH

Area: 443446 sq km; **Capital:** Bhopal; **Population:** 5,21,78,844; **Language:** Hindi; **Literacy:** 27.82%.

Situated in the centre of India and bounded on all sides by other states, Madhya Pradesh (Central Province) is the biggest state in the country.

Physiography: Except for the valleys of the Narmada and the Tapti, M.P. consists of a plateau with a mean elevation of 1600 ft above sea level, interspersed with the mountains of the Vindhya and the Satpura ranges. The main river systems are the Chambal, Betwa, Sindh, Narmada, Tapti, Mahanadi and Indravati.

The average rainfall in the different regions of the state ranges from 30 to 60 inches. The climate is extreme in the north, temperate and breezy in the plateau and generally hot and humid in the eastern and southern plains. Nearly a third of the state's area is covered with tropical forests.

M.P. has the largest population of Scheduled Tribes of all states and a high proportion of Scheduled Castes. Together, they constitute nearly one-third of the population, 23 districts are predominantly tribal. The major tribes MP are Gonds, Bhils, Oraons, Korkens a Kols. Massive development efforts under tri sub-plan are going on in these areas. T tribals in the districts mainly depend on t progress of this area.

History: Under the provisions of the Sta Reorganization Act, 1956, the State of Madh Pradesh was formed on November 1, 1956 consists of the 17 Hindi districts of previous state of that name, the former State Madhya Bharat (except the Sunel enclave Mandsaur district), the former Vindh Pradesh, the State of Bhopal and Sironj sub vision of Kotah district, which was an encl of Rajasthan in Madhya Pradesh.

Administration: The Legislature is icameral with one house—the Legislat Assembly. The state is divided into 45 distri

Districts

District	Area (sq km)	Population (1981 census)	He quar
Balaghat	9229	1147810	Bala
Bastar	39114	1842854	Jagda

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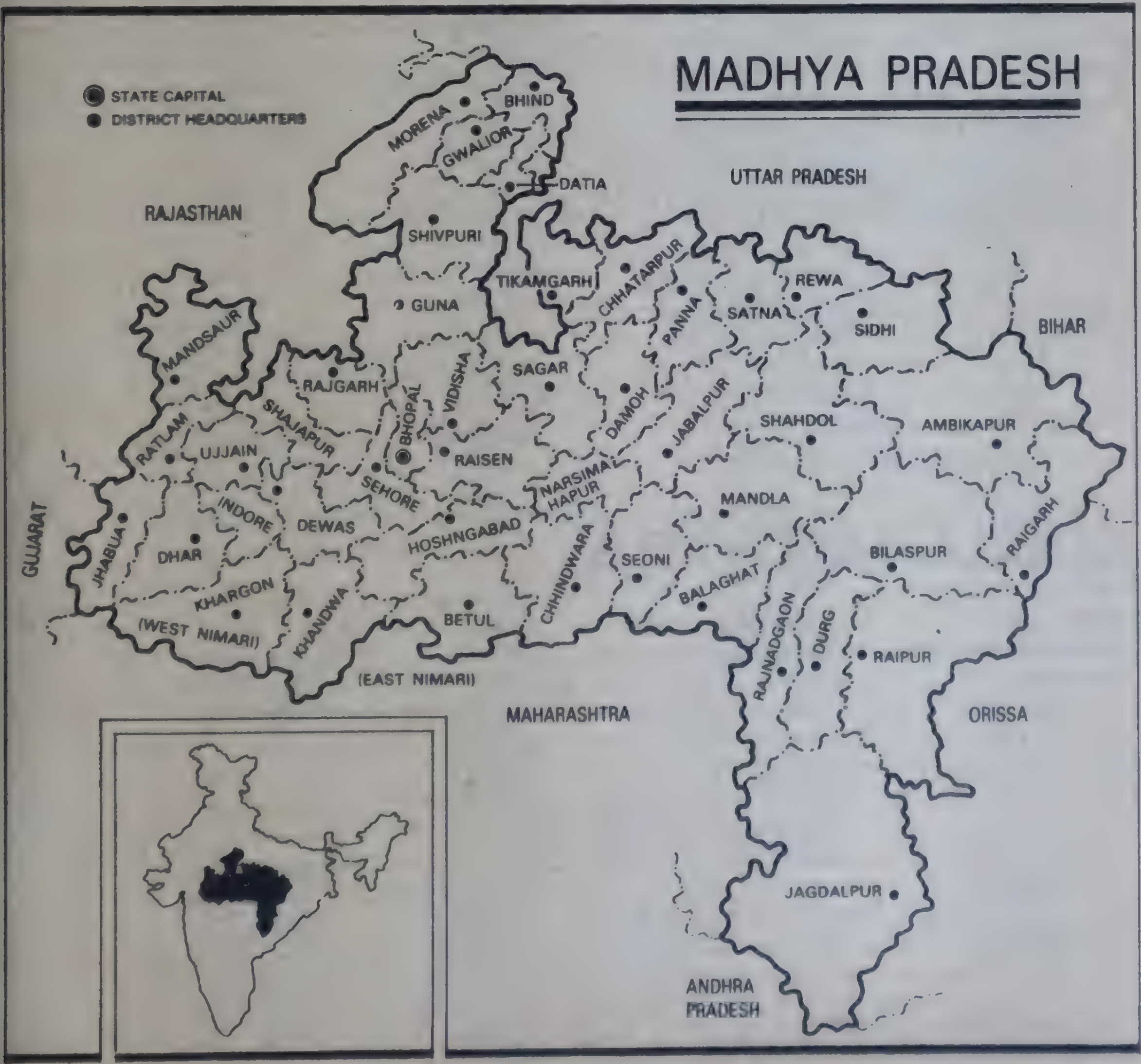
* Please also see the chapter 'Plantation' under 'India'.

Betul	10043	925387	Betul
Bhind	4459	973816	Bhind
Bhopal	2772	894739	Bhopal
Bilaspur	19897	2953366	Bilaspur
Chhatarpur	8687	886660	Chhatarpur
Chhindwara	11815	1233131	Chhindwara
Damoh	7306	721453	Damoh
Datia	2038	311893	Datia
Dewas	7020	795309	Dewas
Dhar	8153	1057469	Dhar
Durg	8537	1890467	Durg
East Nimar	10779	1153580	Khandwa
Guna	11065	1001985	Guna
Gwalior	5214	1107879	Gwalior
Indore	3898	1409473	Indore
Hoshangabad	10037	1003939	Hoshangabad
Jabalpur	10160	2198743	Jabalpur
Jhabua	6782	795168	Jhabua
Mandla	12269	1037394	Mandla
Mandsaur	9791	1263399	Mandsaur
Morena	11594	1303213	Morena
Narsinghpur	5133	650445	Narsinghpur
Panna	7135	539978	Panna
Raigarh	12924	1443197	Raigarh
Raipur	21258	3079476	Raipur
Raisen	8466	710542	Raisen
Rajgarh	6154	801384	Rajgarh
Rajnandgaon	11127	1167501	Rajnandgaon
Ratlam	4861	782729	Ratlam
Rewa	6134	1207583	Rewa
Sagar	10252	1323132	Sagar
Satna	7502	1153387	Satna
Sehore	6578	657381	Sehore
Seoni	8758	809713	Seoni
Shahdol	14028	1345125	Shahdol
Shajapur	6196	840247	Shajapur
Shivpuri	10278	865930	Shivpuri
Sidhi	10226	990467	Sidhi


MADHYA PRADESH
STATE CAPITAL
DISTRICT HEADQUARTERS
UTTAR PRADESH
RAJASTHAN
GUJARAT
BIHAR
ORISSA
MAHARASHTRA
ANDHRA PRADESH
MORENA
BHIND
GWALIOR
DATIA
SHIVPURI
GUNA
TIKAMGARH
CHHATARPUR
PANNA
SATNA
REWA
SIDHI
MANDSAUR
RAJGARH
VIDISHA
SAGAR
DAMOH
JABALPUR
SHAHDOL
AMBIKAPUR
RATLAM
UJJAIN
SHAJAPUR
BHOPAL
RAISEN
SEHORE
INDORE
DEWAS
JHABUA
DHAR
HOSHNGABAD
NARSIMAHAPUR
MANDLA
CHHINDWARA
SEONI
BALAGHAT
BILASPUR
RAIGARH
KHARGON
(WEST NIMARI)
KHANDWA
BETUL
(EAST NIMARI)
RAJNADGAON
DURG
RAIPUR
JAGDALPUR

Surguja	22337	1633476	Ambikapur
Tikamgarh	5048	736981	Tikamgarh
Ujjain	6091	1117002	Ujjain
Vidisha	7371	783098	Vidisha
West Nimar	13450	1630943	Khargone

State of Economy: The economy of Madhya Pradesh is primarily agriculture-based. Nearly 80 per cent of the population live in villages. Over 52.06 per cent of the land area is cultivable, of which 13.4 per cent is under irrigation. The Malwa region abounds in rich black cotton soil, the low lying areas of Gwalior, Bundelkhand, Baghelkhand and the Chhattisgarh plains have lighter soil, whereas the Narmada valley is formed of deep rich alluvial deposits. The main food crops are jowar, wheat and rice and coarse grains such as kodo, kutki, soma, etc. Important among the commercial crops are oilseeds, cotton and sugarcane. The state is poised for a breakthrough in soyabean cultivation.

M.P. is very rich in natural resources like iron ore, manganese ore, coal, lime stone and tin. The major industries are the steel plant at Bhilai, Bharat Heavy Electricals at Bhopal, the Aluminium Plant at Korba, the Security Paper Mills at Hoshangabad, the Bank Note Press at Dewas, the Newsprint Mill at Nepanagar and Alkaloid Factory at Neemuch, Cement Factories, Vehicle Factory, Ordnance factory and Guncarriage Factory. There are also 23 textile mills, 7 of them nationalized.

The Bhilai Steel Plant near Durg is one of the six major steel mills in India. A power station at Korba (Bilaspur) with a capacity o 420 MW serves Bhilai, the Aluminium Plant and the Korba coalfields.

The Bharat Heavy Electricals was set up b the Government of India at Bhopal during the Second Plan period. This is India's first heav electrical equipment factory and also one o the largest of its type in Asia. It makes a variet of highly complicated equipments requirec for generation, transmission, distribution anc utilization of electric power.

A large number of agro-based industrie have also come up. Large number of solven extraction plants based on soyabean hav been established. Fourteen Industrial Growt Centres are being developed in the state.

Tourist Centres: Khajuraho, once the capita of Chandella rulers is 595 km from Delhi. Th embodiment of the great artistic activity of th 9th to the 12th centuries, only 22 temples ou of 85 survive.

Ujjain with historic palaces, Sanchi wit ancient Buddhist monuments, Bhopal th lake-side capital city, Jabalpur famous fo marble rocks and Gwalior with beautiful fort are among the other tourist centres.

Kanha National Park near Jabalpur is one c the most beautiful wild life sanctuaries i India.

Governor: K.M. Chandy; **Chief Ministe** Motilal Vohra.

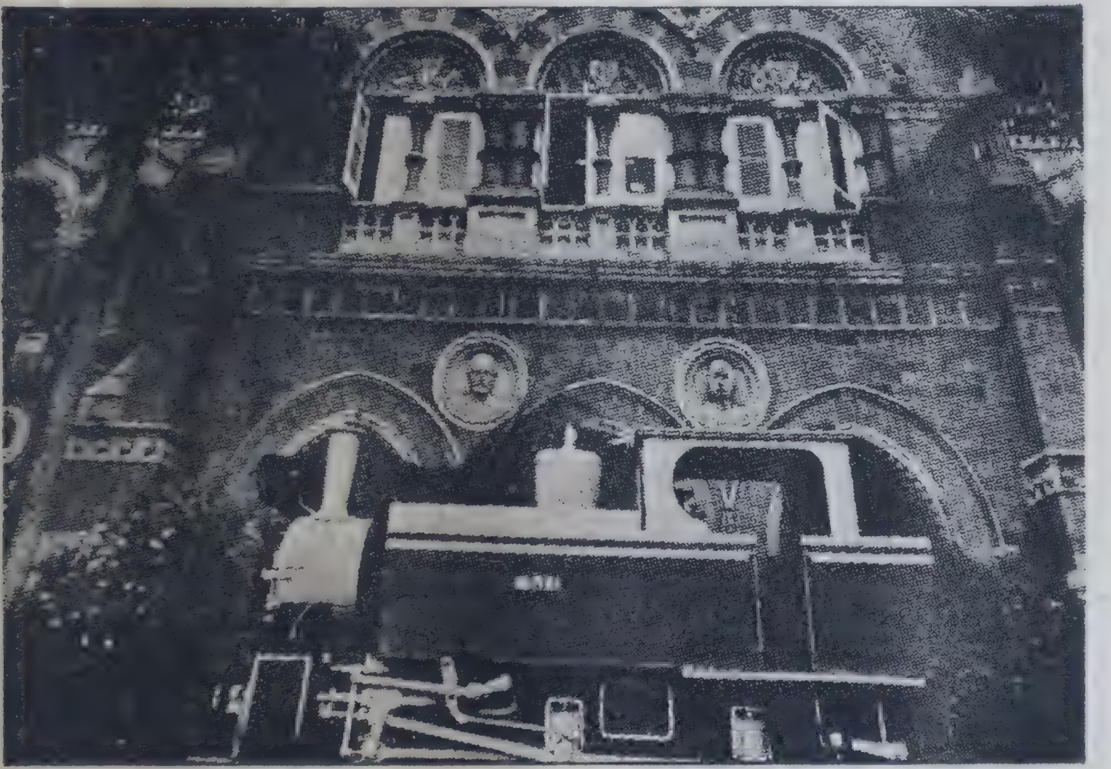
MAHARASHTRA

Area: 3,07,690 sq km; **Capital:** Bombay; **Population:** 6,27,84,171; **Language:** Marathi; **Literacy:** 47.37%.

Maharashtra is the third largest state in India both in area and population. Only Uttar Pradesh and Bihar have larger populations and Madhya Pradesh and Rajasthan have larger areas than Maharashtra. The state is bounded by the Arabian Sea in the west, Gujarat in the north west, MP in the north, AP in the south east and Karnataka and Goa in the south.

Physiography: The State of Maharashtra forms a huge irregular triangle with its base on the west coast of India, overlooking the Arabian Sea. The coastal strip, about 720 km long and not more than 80 km wide, is the Konkan, dotted with paddy fields and coconu gardens. The Sahyadris or the Western Gha running almost parallel to the sea coast flan the Konkan on its east. To the east of th Sahyadris stretches a vast plateau forming th apex of the triangle.

This plateau is drained by the great rive Godavari, Bhima and Krishna, which rise the Sahyadris and flow eastward across th Indian peninsula, into the Bay of Bengal. Th plateau is extremely fertile and provid excellent crops of cotton, oils seeds ar sugarcane. The rainfall in the state vari considerably, the areas west of the Sahyadr like the districts of Thane, Raigad, Ratnag and Sindhudurg receive heavy rains with



Hundred years of Victoria Terminus

Bombay's Victoria Terminus which completed a century on Sunday, June 28, 1987 is one of the most impressive railway terminuses in the world.

Two million commuters arrive or depart by 913 local and 50 outstation services there daily. Designed by F. W. Stevens the looming 457.2 metre structure was built in 10 years from 1878 to 1888 and cost Rs. 10.41 lakh.

The statue of progress (lady with a flaming torch and spoked wheel) adorns the main building. But the statue of Queen Victoria in the quadrangle was struck by lightning and damaged in 1969. It now rests in the arts museum.

annual average of 200 cm.

The areas which lie in the rain-shadow of the Sahyadris, however, comprise the major portion of the state area and get an average rainfall of around 60 to 75 cm annually and in some areas less than 50 cm. These areas include the districts of Nashik, Pune, Ahmednagar, Dhule, Jalagaon, Satara, Sangli, Solapur and parts of Kolhapur.

History: Historically, Maharashtra falls into three regions. Western Maharashtra, Vidarbha and Marathwada. Among these, Vidarbha has a hoary past and is mentioned many times in the Mahabharata. Maharashtra as a whole figures in history during the Mauryan period when it became part of the Mauryan Empire. After the fall of the Mauryas, Maharashtra was under the domination of a number of Hindu dynasties for nearly a thousand years. The Yadavas, the last of these dynasties, ended in 1294. Thereafter the state came under a succession of Muslim rulers.

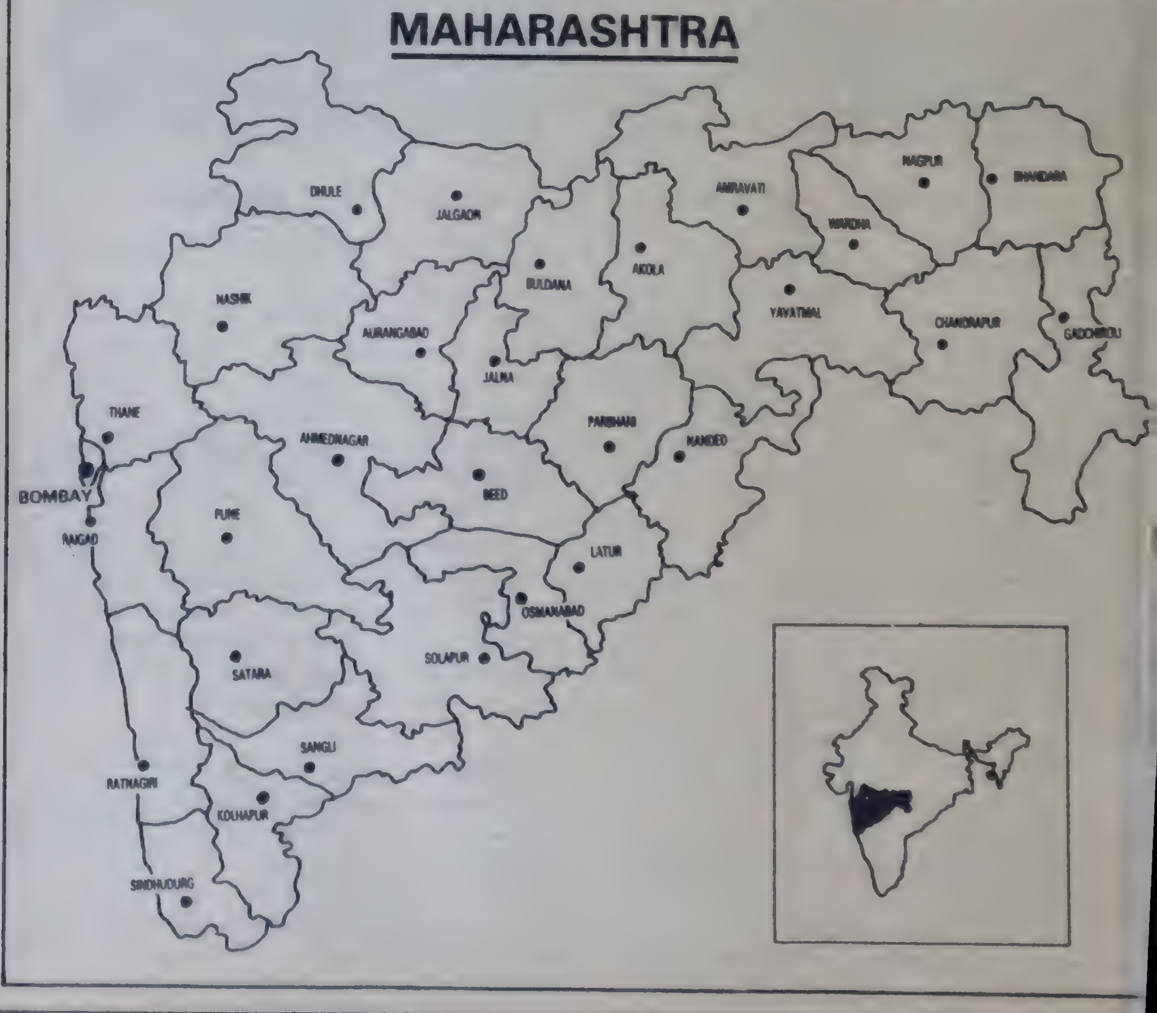
With the rise of Shivaji, Maharashtra entered a new phase in history. Shivaji welded the Marathas into a powerful nation. They became rulers instead of subjects. The Peshwas who succeeded Shivaji built up a Maratha Empire which extended from Gwalior in the north to Tanjore in the south. The Maratha power received a setback at Panipat, in 1761, when the Afghan ruler Ahmed Shah Abdali routed the Maratha forces. They recovered only to confront the British power and to be decisively defeated in 1818. After the defeat of 1818 Maharashtra settled down as part of the Bombay Presidency under the British administration.

In independent India, Bombay continued as one state consisting of Maharashtra and Gujarat. This was an experiment in bilingualism–that is, one state comprising two linguistic units. The experiment did not work. Under the Bombay Re-organization Act, 1960 Maharashtra and Gujarat were formed into separate states on May 1, 1960, Maharashtra retaining the old capital Bombay.

Administration: Legislature: The state has a bicameral legislature–the Legislative Assembly (Vidhan Sabha) and the Legislative Council (Vidhan Parishad). The state is divided into the following districts:

Districts

District	Population 1981	Area (in sq km)	Headquarter
Greater Bombay	8243405	603	Bomba
Thane	3351562	9558	Than
Raigad	1486452	7148	Aliba
Ratnagiri†	1379655	8249	Ratnagir
Sindhudurg	772555	5219	Kudal
Nashik	2991739	15530	Nashi
Dhule	2050294	13150	Dhul
Jalgaon	2618274	11765	Jalgao
Ahmednagar	2708309	17048	Ahmednaga
Pune	4164470	15642	Pun
Satara	2038677	10484	Satar
Sangli	1831212	8572	Sangl
Solapur	2610144	14874	Solapu
Kolhapur	2506330	7633	Kolhapu


MAHARASHTRA
DHULE
JALGAON
AMRAVATI
NAGPUR
BHANDARA
WARDHA
AKOLA
BULDANA
NASHIK
AURANGABAD
YAVATMAL
CHANDRAPUR
GADCHIROLI
JALNA
THANE
AHMEDNAGAR
PARBHANI
NANDED
BEED
BOMBAY
RAIGAD
PUNE
LATUR
OSMANABAD
SOLAPUR
SATARA
SANGLI
RATNAGIRI
KOLHAPUR
SINDHUDURG

Aurangabad‡	1588031	9172	Aurangabad
Jalna*	1032157	8656	Jalna
Parbhani	1829378	11038	Parbhani
Bid	1486030	10624	Bid
Nanded	1749334	10502	Nanded
Osmanabad+	1029712	7510	Osmanabad
Latur*	1293442	7304	Latur
Buldana	1508777	9661	Buldana
Akola	1826952	10575	Akola
Amaravati	1861410	12212	Amaravati
Yavatmal	1737423	13584	Yavatmal
Wardha	926618	6310	Wardha
Nagpur	2588811	9931	Nagpur
Bhandara	1837577	9213	Bahandara
Chandrapur**	1418306	10490	Chandrapur
Gandachiroli§	637336	15433	Gadchiroli

* Provisional

† Reorganized as Ratnagiri and Sindhudurg district with effect from 1st May 1981.

‡ Reorganized as Aurangabad and Jalna districts with effect from 1st May 1981.

+ Reorganized as Osmanabad and Latur districts with effect from 16th August 1982.

** Reorganized as Chandrapur and Gandachiroli districts with effect from 26th August 1982.

§ Gandachiroli from 1st May 1983 onwards.

State of Economy: About 70 per cent of the people in Maharashtra depend on agriculture. About 12.22 per cent of the total cultivated area is irrigated. The principal food crops are wheat, rice, jowar, bajra and pulses. Important cash crops are cotton, sugarcane, groundnut and tobacco.

Although the state accounts for 9.2 per cent of the total population of the country, it shares about 11 per cent of industrial units, over 17 per cent of labour, about 16 per cent of investment and 23 per cent of the value of industrial output.

The industry groups contributing substantially to Maharashtra's industrial production are chemicals and chemical products, textiles, electrical and non-electrical machinery and petroleum and allied products. Other important industries are pharmaceuticals, engineering goods, machine tools, steel and iron castings and plasticware. It also leads in sophisticated electronics equipment. Santa Cruz Electronics Export Processing Zone (SEEPZ), is a free trade zone for cent per cent export.

The development of offshore oil fields at Bombay High and the nearby Bassein North Oil Fields have contributed greatly for the industrial development of the state.

Bombay is the Hollywood of India as far as film production is concerned. New growth centres are coming up at Nasik, Aurangabad, Nagpur, Jalgaon.

Tourist Centres: Some of the important tourist centres are the Caves–Ajanta, Ellora, Elephanta, Kanheri and Karala; Hill stations–Mahabaleshwar, Matheran and Panchagani; Religious Places: Pandharpur, Nashik, Shirdi, Aundhanagnath, Nanded and Ganapatipule.

Governor: Vaccant. **Chief Minister:** S.B. Chavan (Congress).

MANIPUR

Area: 22,327 sq km; **Capital:** Imphal; **Population:** 14,20,953; **Languages:** Manipuri & English; **Literacy:** 41.35%.

Manipur has been a Union Territory from 1956 and a full-fledged state from 1972.

Manipur is bounded by Nagaland in the north, Mizoram in the south, Upper Burma in the east and Cachar district of Assam in the west.

History: Manipur has a varied and proud history from the earliest times. It came under British rule as a princely state in 1891. The Manipur Constitution Act, 1947, established a democratic form of government with the Maharajah as the Executive Head and a legislature constituted by election on adult franchise. The Legislative Assembly so constituted functioned till it was dissolved on the integration of the erstwhile state with the Dominion of India in October, 1949.

Then it was governed as if it were a Chief Commissioner's Province and then as a Port 'C' State under the Indian Constitution with effect from 26-1-1950. In 1950-51 an advisory form of popular government was introduced and in 1957 this was replaced by a Territorial Council of 30 elected and 2 nominated members. Thereafter in 1963, a legislative assembly of 30 elected and 3 nominated members was established.

The status of the Administrator was raised from that of a Chief Commissioner to that of a

Lieutenant Governor in December, 1969. Manipur achieved full statehood on January 21, 1972.

Administration: Manipur was reorganized into 8 districts in 1983. The district headquarters bear the same name as the districts.

Districts

Imphal	1,303	5,56,146
Bishnupur	530	1,41,150
Thoubal	405	2,31,781
Ukhrul	4,544	82,946
Senapati	3,271	1,55,421
Tamenglong	4,391	62,289
Churachandpur	4,570	1,34,776
Chandel	3,313	56,444

State of Economy: The main crop of the state is paddy. Maize is cultivated in the foot hills. Out of the area of 22,327 sq km, the area available for cultivation is about 2.1 lakh hectares only. The area under paddy is 1.86 lakh hectares out of which 1.10 lakh hectares is in the valley. About 70% of the valley area has been brought under high yielding varieties of paddy.

The state has made significant advance in the field of agriculture. Per hectare consumption of fertiliser reached 56 kg during 1986-87. More than 70% of the high yielding varieties of paddy are locally bred, punshi, phouoibi and KD series.

Handloom is the biggest industry in Manipur. There are 3 lakh spindles and at least 3 lakh persons are employed in the field.

The Manipur Spinning Mill, launched in 1974 has grown to use 16,416 spindles.

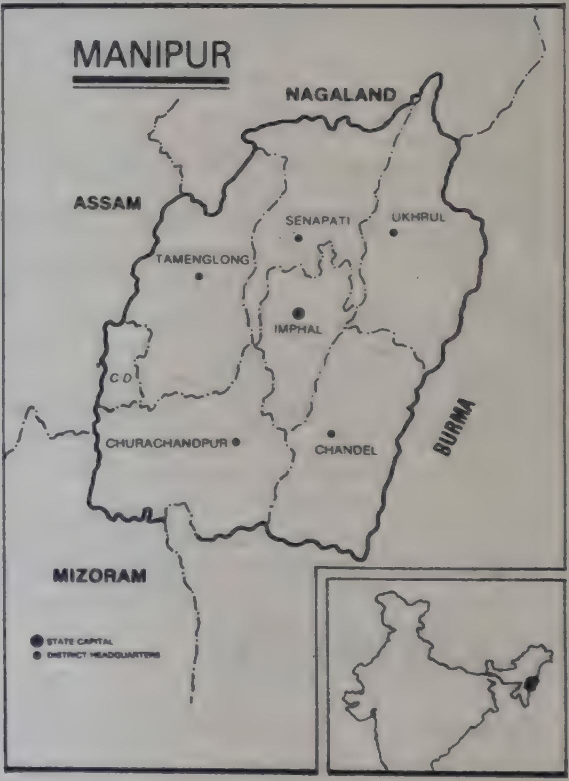
The 60 TPD capacity Khandsari Sugar Factory at Wanghal has gone into production.

A TV assembly unit and cycle assembly unit are working in full swing. A Mechanised Dye House was commissioned in 1987.

There are 5970 small scale industrial units with almost 23,800 workers in the state.

Sericulture: Manipur is the first to introduce Oak Tasar Industry. In the hill area there are 75 Tasar Farms. 1500 Tribal families (or 1500 numbers) produce about 30 million Tasar cocoons valued Rs.3.00 million. Apart from this over 100 Scheduled Caste families in the valley practise Mulberry rearing in traditional ways producing 45,000 kg of raw silk annually by reeling and spinning and utilise the same in its exquisite handloom industry.

Tourist Centres: The important tourist centres in the state are Imphal, the capital and centre of all cultural and commercial activities adorned with two War Cemeteries maintained by Commonwealth War Graves Commission, Govindajee Temple, Women bazaar, etc. Besides, the Bishnu temple at Bishnupur built in 1467 A.D., the Loktak lake, the biggest fresh water lake in eastern India, Keibul Lamjao, the only floating national park in the world, the Orchid Yard at Khongampat etc. are also quite attractive.



Accommodation facilities at important centres such as Waichou, Kaina, Phubala, Sendra and Tourist Lodge at Imphal are remarkable. Transport facilities are provided with Deluxe, Mini Bus and Taxi services at moderate charges.

Governor: S.M.H. Burney; **Chief Minister:** Rishang Keishing (Congress).

MEGHALAYA

Area: 22,429 sq km; **Capital:** Shillong; **Population:** 13,35,819; **Languages:** Khasi, Garo and English. **Literacy:** 34.08%.

Meghalaya, literally 'the abode of the clouds' (Megha-clouds, Alaya-abode), was inaugurated as an autonomous unit on April 2,1970. It was declared a state of the Indian Union on January 21, 1972.

Physiography: The exclusive tribal State of the Khasis, the Jaintias and the Garos is a mountain region. Shillong, the capital of Meghalaya, is situated in the centre of a high plateau. The highest peak in the state is the Shillong Peak 6965 ft in height. Nokrek in the Garo Hills district is the next highest peak.

A number of rivers, none of them navigable, drain this mountainous area. Krishnai (Damring), Kalu (Jira), Bhugai (Bugi), Nitai (Dareng) and Someswari (Simsang)* flow through the Garo Hills District; Kynshi, Khri, Umtrew, Umngot, Umiam Mawphlang and Umiam Khwan flow through Khasi Hills district and Kupli, Myntdu & Myntang flow through Jaintia Hills district. All these rivers with rocky beds and swift currents abound in cataracts and waterfalls. The most picturesque waterfall is the one at Mawsmai village called Nohsngithiang near Cherrapunjee. Here, the waters of several rivulets are precipitated over a sheer cliff several hundred feet high.

The average annual rainfall of the state is 10000-12700 millimetres. In the capital city of Shillong, rainfall averages 2032 millimetres per annum. The Cherrapunjee-Mawsynram belt in the southern slopes of Khasi Hills has the distinction of having the world's heaviest rainfall, with an average of 12,700 millimetres per annum.

Meghalaya, known as the Scotland of the East, is a country of surpassing scenic beauty. Waterfalls and mountains, lakes, rising peaks and billowing hills, meadows, valleys and rushing rivers combine to make a rich panorama.

The Khasis, Jaintias and Garos are very ancient tribes, who had settled in these hills in remote past. They number about ten lakh.

Dance, music and sports reflect their way of life. Festive sounds of merry-making echo from hill to hill revealing the pulsating life of the tribal people. Mindful of their cultural heritage these simple folk are jovial and hospitable.

Administration: Meghalaya is a constituent state of the North Eastern Council. The state has a unicameral legislature. The Legislative Assembly consists of 60 members—29 from Khasi Hills, 7 from Jaintia Hills and 24 from Garo Hills.

The following table shows the district-wise area and population of the state according to the final figures of 1981 census.

Districts

District	Area (sq km)	Population	Headquarters
East Khasi Hills	5196	511414	Shillong
West Khasi Hills	5247	161576	Nongstoin
East Garo Hills	2603	136550	Williamnagar
West Garo Hills	5564	369877	Tura
Jaintia Hills	3819	156402	Jowai

Meghalaya, originally, comprised two districts and three subdivisions. In order to accelerate the pace of development and to bring the administration closer to the people, the state has now been re-organized into five districts, and ten sub-divisions. For an all round development of the rural areas, the whole state is now covered by 30 Community Development Blocks.

State of Economy: The majority of the people depend on land for their livelihood. But the potential for agricultural expansion is very limited in Meghalaya due to the terrain. Jhumming or shifting cultivation, practised in the state on a large scale, is one of the biggest problems to be tackled in Meghalaya. This traditional practice is deeply rooted among the hill people.

However, the state government has made a modest beginning with a scheme to help the farmers to settle on lands which are suitable for steady cultivation. The state's Soil Conservation Department's resettlement scheme called Jhum Control Scheme envisages allotment of improved land to villagers together with supply of fertilizers, seeds, irrigation facilities, etc. The developed lands would also be linked with roads for marketing the produce. At present, the villages in selected areas with a minimum of 50 families are growing crops by modern methods.

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* The names in brackets are tribal names.

The state is not so far industrially developed. However, new industrial units set up by or with the help of the Meghalaya Industrial Development Corporation are fast coming up. Some of them are:

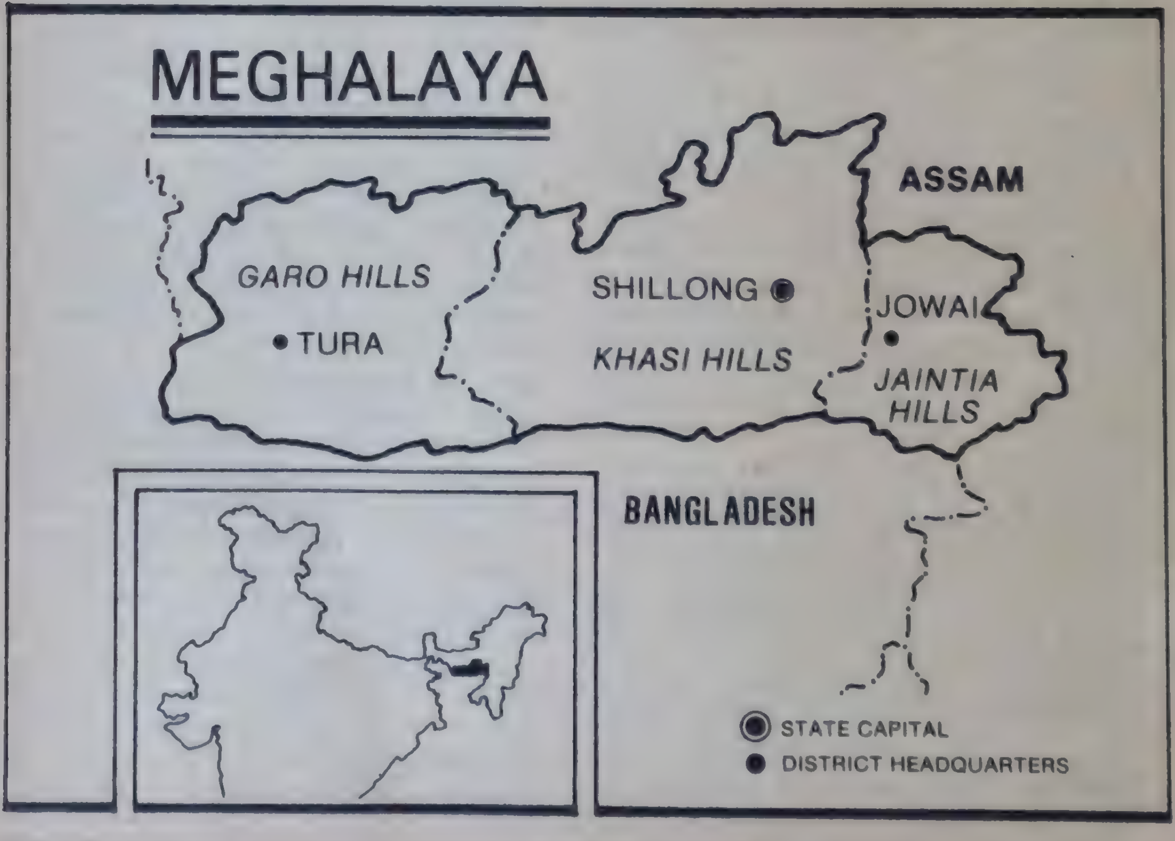
The Meghalaya Plywood Ltd., The Associated Beverages (P) Ltd., The Meghalaya Essential Oils and Chemicals Ltd., The Meghalaya Phyto-Chemicals Ltd. The Komorah Limestone Mining Co. Ltd., The Meghalaya Towers and Trusses Ltd. and the Umiam Calcenates Ltd.

The public sector cement factory at Cherrapunjee known as the Mawmluh-Cherra Cement Ltd., which was producing 250 tonnes of cement daily, has been expanded to a production capacity of 930 tonnes per day.

Tourist Centres: Meghalaya is a 'dream-come-true' for the tourist. The charms of this land are many-splendoured and unique. It is a happy land of magnificent beauty, undulating hills, rolling grasslands, cascading waterfalls, snaking rivers, terraced slopes and thrilling wild life.

Some of the important tourist spots are: (1) Uniam Lake by the side of the Shillong-Guwahati road provides a very fascinating view. Fishing is a great sport over here. (2) Kyllang Rock, about 55 kilometres west of Shillong, is an interesting tourist spot. Rising out of the rolling grassy downs, it is an imposing dome of granite more than 700 feet in height. (3) Nohsngithiang falls at Mawsmai near Cherrapunjee, overlooking the hazy blue plains of Bangladesh, has an appeal unparalleled in the whole of India. And the Mawsmai caves are full of wonders to the eyes. (4) Nartiang, about 90 kilometres from Shillong, has a number of monoliths, the tallest being 27 feet high and ½ foot thick erected by the villagers of Nartiang between 1500 and 1835 A.D.

Governor: Bhishma Narain Singh. **Chief Minister:** Capt. Williamson Sangma (Congress).



MIZORAM

Area: 21081 sq km; **Capital:** Aizawl; **Population:** 4,93,757; **Languages:** Mizo and English; **Literacy:** 60%.

Mizoram, in the local language, means the land of Mizos—Mizo itself means high lander (mi-persons and zo-hills or uplands). Under the British administration, Mizoram was known as Lushai Hills District. In 1954 by an Act of Parliament the name was changed to Mizo Hills District. In 1972, when it was made into a Union Territory, it was named Mizoram.

Physiography: Mizoram occupies the north east corner of India. It is bounded on the north by the District of Cachar (Assam) and the State of Manipur, on the east and south by Chin Hills and Arakan (Burma), on the west by the Chittagong hill tracts of Bangladesh and the State of Tripura.

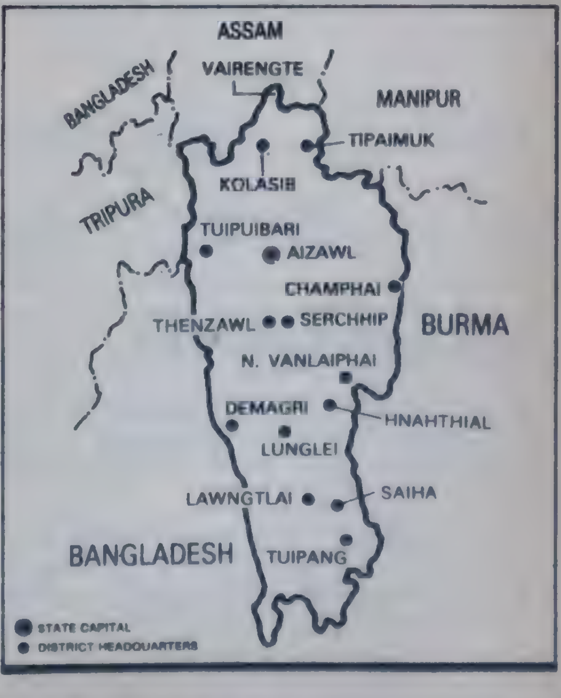
Mizoram is a land of hills. The hills run in ridges from north to south. They have an average height of 900 metres, the highest point being the Blue Mountain (Peak) in the south which rises to a height of 2165 metres. The hills are steep and cut apart by rivers which have created deep gorges. The terrain, on the whole, is mountainous except for low depressions amid hills, where wet cultivation is practised.

The most important and useful rivers are the Tlawng (or the Dhaleswari), the Sonai and the Tuivawl, which drain the northern area of the Territory and eventually join the Barak. The southern area is watered by the Kolodine and its tributaries and the western area by the Karnaphuli with its tributaries. Chittagong in Bangladesh is situated at the mouth of this river.

The valleys are unhealthy during the rainy season, wet and enervating. In the higher areas, the climate is pleasant, generally cool in summer and not very cold in winter. In March-April violent storms from the north west sweep over the hills. The average rainfall between May and September is 254 cm. Aizwal in the north records an annual rainfall of 208 cm while Lunglei in the south records 350 cm.

History: The Mizos belong to the Mongolian race. They seem to have settled at first in the Shan State of Burma. The tribes left Burma and moved westwards into India. They occupied the Lushai Hills.

During the British administration, the Mizos raided British territories and even attacked fortified positions. The British army moved against the Mizos and occupied their territory. It was annexed to British India in 1891. In 1898, the entire Mizo territory was formed into the Lushai Hills District and made a part of Assam. Although the Mizos were subjugated, the British did not interfere with their village administration. The Mizo Chiefs carried on the day-to-day administration in the traditional manner.



With independence, Mizoram became a district of Assam. Because of neglect by the authorities, the Mizos felt that it was a bad bargain for them to continue as part of India and started agitations in 1966. It was declared a disturbed area. Armed Forces (Special Powers) Act also was invoked. On June 30, 1986, the historic Mizoram Peace Accord was signed between the Government of India and the Mizo National Front ending the two-decade old insurgency.

The Mizos are divided into various tribes—the Lushais, Pawis, Paithes, Raltes, Pang, Hmars, Kukis, Maras, Lakhers, etc. In the 19th century the Mizos came under the influence of British missionaries and many Mizos were converted to Christianity.

The Mizo language had no script of its own. The missionaries introduced the Roman script for the Mizo language and started teaching English also. The cumulative result was a high precentage of literacy. The majority of the tribes are Christians and speak Mizo and English. But some tribes on the border like the Chakmas are Buddhist and speak Bengali.

Administration. Mizoram has a single-chamber legislature consisting of 33 members. The territory has three Districts, 9 Sub-Divisions, 3 autonomous Hill District Councils, 6 Towns (as per 1981 census), 23 Police Stations and 301 Village Councils (instead of Gram Panchayats).

Districts

District	Area (sq km)	Population (1981)	Headquarters
Aizawl	12589	340826	Aizawl
Lunglei	4536	86511	Lunglei
Chhimtutipui	3957	66420	Chhimtuipui

State of Economy: Agriculture is practically the only occupation in Mizoram. The territory is famous for its fibreless ginger, although other cash crops like mustard, sesame and potatoes are also grown. However, the cultivation method— "Jhum" —is very primitive and destructive. The Mizoram Government is now trying to induce the peasants to change over to more permanent systems of cultivation like terraced farming on the hill sides. There are also schemes to grow plantation crops like rubber, coffee, tea, etc.

Paddy is the chief food crop, followed by maize. They are grown on the slopes of hills. One of the chief constraints in increasing agricultural production is the lack of irrigational facilities. Only 2885.30 ha is irrigated in Mizoram.

There is no major industry in Mizoram. Handloom and handicraft are the major industrial activities in the Territory and one Engineering Unit has developed a new design of machine-combined ginning and carding.

Tailoring, knitting and embroidery centres have been set up.

Sericulture in 4 kinds of silk, — Mulberry, Eri, Tasar, and Muga is practised widely.

Other industries are: Ginger beverages, oil, fruits preservation, handloom and some other small scale & cottage industries like bakery, printing press, saw mills, brick making, soap making, etc.

Lt. Governor: Hiteshwar Saikia; **Chief Minister:** Laldenga (Mizo National Front).

NAGALAND

Area: 16,579 sq km; **Capital:** Kohima; **Population:** 7,74,930; **Languages:** English, Ao, Konyak, Angami, Sema and Lotha. **Literacy:** 41.99%.

Physiography: The State of Nagaland is a narrow strip of mountainous territory between the Brahmaputra Valley of Assam and Burma. On the east it shares India's international boundary with Burma. On all other sides it is bounded by Indian territory—Manipur on the south, Assam on the west and north, and Arunachal Pradesh on the north east.

Excepting some areas in the foothills, the state is mountainous. Saramati, the highest peak, is 12600 ft high and Kohima, the capital, is 4800 ft above sea level. The main rivers that flow through the state are Dhansiri, Doyang, Dikhu and Jhanji.

The population of Nagaland is almost entirely tribal. There are many separate tribes and sub-tribes among the Nagas with their own distinctive languages and cultural features. Kohima district is the home of the Angamis, Zeliangs, Rengmas, a small group of Kukis, Semas and other minor groups. Mokokchung is the home of Aos, Wokha district of the Lothas and Zunheboto district of the Semas. Tuensang district is the home of the Chang, the Sangtam, the Khemnungan, the Yimchunger, the Phom, the Semas and other minor groups. Mon district is the home of the Konyaks. It is these people who chiefly practise Jhum cultivation.

History: The Nagaland State comprises the former Naga Hills district of Assam and the former Tuensang Frontier division of the North East Frontier Agency. These had been made a Centally Administered Area in 1957, administered by the President through the Governor of Assam. In January 1961 the Government of India conferred the status of a State on Nagaland. The State of Nagaland was officially inaugurated on 1st Dec. 1963.

Administration: The State has a unicameral legislature—the Legislative Assembly.

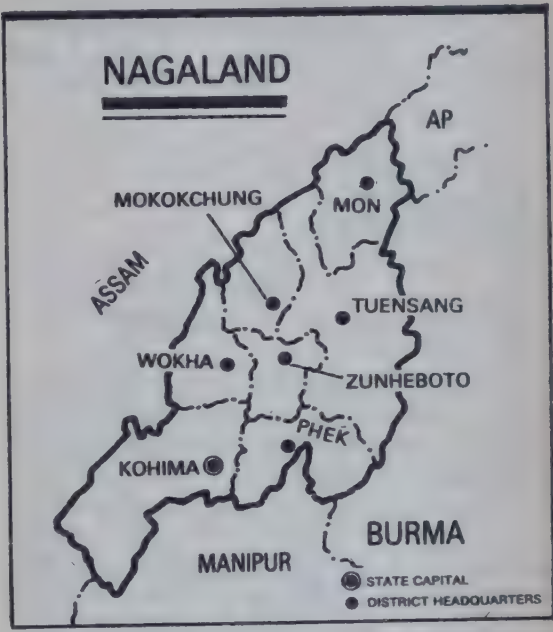
Districts

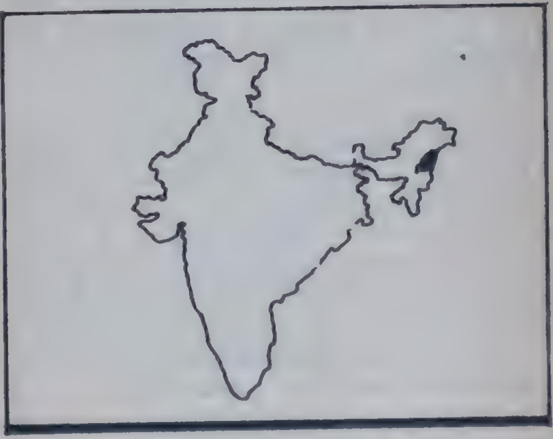
District	Area (sq km)	Population 1981	Headquarters
Kohima	4041	250105	Kohima
Phek	2026	70618	Phek
Mokokchung	1615	104193	Mokokchung
Zunheboto	1255	61161	Zunheboto
Wokha	1628	57583	Wokha
Tuensang	4228	152332	Tuensang
Mon	1786	78938	Mon

Originally the state was divided into 3 districts. In Dec. 1973, the districts were reconstituted as above.

State of Economy: Agriculture is the main occupation of 90% of the population. Rice is the important food grown.

Although agriculture is the mainstay of the state, only a little more than one-third of the total area is cultivable. Considering the hilly terrain, this is not unusual but the main drawback is that cultivation is vitiated by what is called jhumming. Under this system, forest lands are cut down and burnt and crops are planted in the burnt out lands. After a crop or two, these lands are abandoned and fresh forests are cut down and burnt. This leads to soil erosion and permanent loss of fertility of the soil.





But now the Govt. is encouraging terraced cultivation under various developmental programmes which are increasingly being adopted by people. The area under jhum cultivation is 87339 hectares and under terraced cultivation 62091 hectares.

Nagas have an artistic hand in many crafts. Carving of beautiful designs with their simple equipment like dao, home-made colours and pieces of bamboo is practised mostly for domestic and local requirements.

Nagaland has achieved remarkable progress in small and medium industries. Big industries are being planned although at present there is only 1 sugar mill, 1 pulp and paper mill and one plywood factory. One cement factory is also coming up.

Among the new industries are plastic moulding, hume pipes, polythene bags and rubber chappals.

Governor: Gen. K.V. Krishna Rao. **Chief Minister:** Hokishe Sema (Congress).

ORISSA

Area: 1,55,707 sq km; **Capital:** Bhubaneswar; **Population:** 2,63,70,271; **Language:** Oriya; **Literacy:** 34.12%.

Physiography: Orissa lies on the east coast of India. It is surrounded by West Bengal in the north-east, Bihar in the north, Andhra Pradesh on the south-east, Madhya Pradesh on the west and Bay of Bengal on the east. The whole state lies in the tropical zone and is divided into four distinct tracts, viz, the northern plateau, the eastern ghats, the central tract and the coastal plains. The state is drained by three great rivers, the Mahanadi, the Brahmani and the Baitarani and the some lesser rivers, all of which flow into the Bay of Bengal.

The biggest and the most famous lake in Orissa is the Chilka lake. Originally, it was part of the Bay of Bengal, but was subsequently closed up by sand dunes. It is 64 km along and 16 to 20 km wide. There are two beautiful islands in the lake namely Parikud and Malud. Two other lakes call for mention, the Ansupa Lake (Cuttack District), about 5 km long and 1.6 km broad, and the Sara Lake, (Puri District) about 5 km long and 3 km wide.

Orissa has an equable climate, neither too hot nor too cold. In some places, however, extremes of climate are experienced, namely, in the western districts like Bolangir, Sambalpur and Sundargarh. The average rainfall in the state is 150 cm. There is no desert or semi-desert area in the state.

History: Orissa, the land of the Oriyas, was known as Kalinga in the ancient days. In the third century B.C. (268 B.C.) Ashoka, the Mauryan emperor, sent a powerful force to conquer Kalinga which offered stubborn resistance. Kalinga was subdued but the carnage which followed struck Ashoka with remorse. It is here, where Ashoka "the Terrible" was transformed to Ashoka "the Compassionate". After the death of Ashoka, Kalinga regained its independence. In the second century B.C. Kalinga became a powerful country under its ruler Kharavela. With the death of Kharavela, Orissa passed into obscurity. In the 4th century A.D. Samudragupta set out on his conquest of the south from Magadha. He invaded Orissa, which lay astride his path and overcame the resistance offered by five of its kings. In A.D. 610, Orissa came under the sway of King Sasanka. After Sasanka's death Harsha conquered Orissa.

The country had its own independent dynasty of rulers (the Ganga dynasty) in the 7th century A.D. In A.D. 795 Mahasivagupta Yayati the Second, came to the throne and with him began the most brilliant epoch in the history of Orissa. He united Kalinga, Kengoda, Utkala and Kosala in the imperial tradition of Kharavela. He is believed to have built the famous Jagannatha Temple at Puri. Under the kings of the Ganga dynasty, Orissa continued to flourish. Narasingha Dev of this dynasty is reputed to have built the unique temple of the Sun at Konarak.

From the 14th century, Orissa was ruled by successive Muslim Kings till 1592 when Akbar annexed it to the Mughal Empire. With the decline of the Mughals, the Marathas occupied Orissa. They continued to hold it till the British took over in 1803.

Orissa was made into a separate province in 1936. With independence, the Princely states in and around Orissa, surrendered their sovereignty to the Government of India. By the States Merger (Governor's Provinces) Order 1949, the Orissa Princely States were completely merged with the State of Orissa on 19th August, 1949.

Administration: The legislature is unicameral—the Legislative Assembly consisting of 147 members.

The state is divided into 3 revenue divisions, Central, Northern and Southern and thirteen districts.

Districts

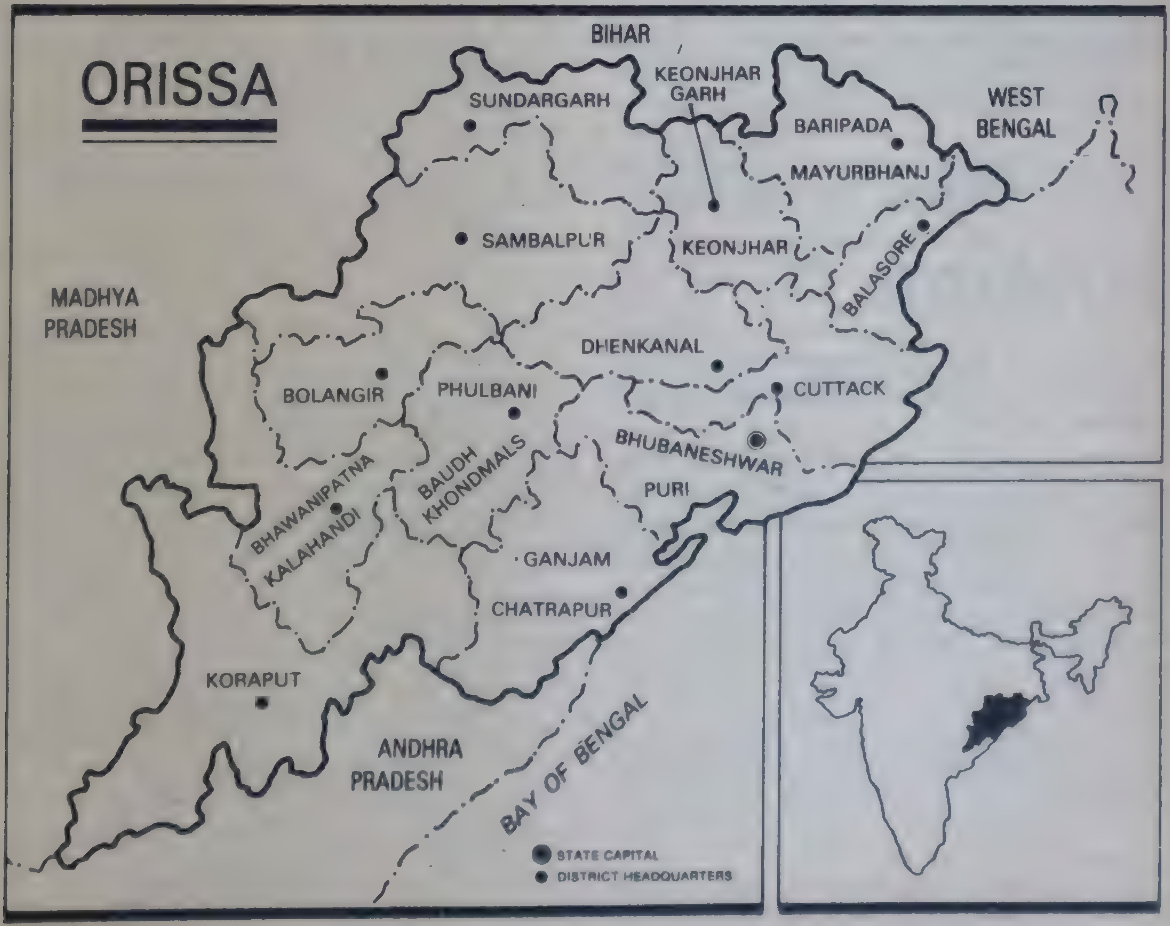
District	Area sq km	Population 1981	Headquarters
Baleshwar	6394	2252808	Baleshwar
Phulbani	11070	717282	Phulbani
Balangir	8903	1459113	Balangir
Cuttack	11211	4628800	Cuttack
Dhenkanal	10826	1582787	Dhenkanal
Ganjam	12527	2669899	Chhatrapur
Kalahandi	11835	1339192	Bhawanipatna
Kendujhar	8240	1114622	Kendujhar
Koraput	27020	2484005	Koraput
Mayurbhanj	10412	1581873	Baripada
Puri	10159	2921045	Puri
Sambalpur	17570	2280976	Sambalpur
Sundargarh	9675	1337871	Sundargarh

Orissa has a high percentage of Scheduled Castes and Tribes which together make 9.78 million out of a total of 26.37 million people.

State of Economy: Orissa's agro-based economy is always upset by some natural calamities like flood, drought, tornado or cyclone. Flood and drought are common to many states but only a few states are subject to cyclones and tornado. Orissa is one of the few. Cyclone has in recent years become a regular feature like flood or drought. In 1980 an unprecedented flood caused untold miseries to the people in nine districts of the state.

Over 76% of the people are dependent on agriculture. Out of the gross cropped area of 87.46 lakh hectares, 18.79 lakh hectares are irrigated. Rice, pulses, oil-seeds, jute, mesta, sugarcane, coconut and turmeric are important crops. The state contributes about one-tenth of the rice production in India.

Orissa's vast mineral, marine and forest resources provide adequate opportunities for


ORISSA
BIHAR
KEONJHAR GARH
SUNDARGARH
WEST BENGAL
BARIPADA
MAYURBHANJ
SAMBALPUR
KEONJHAR
BALASORE
MADHYA PRADESH
DHENKANAL
BOLANGIR
PHULBANI
CUTTACK
BHUBANESHWAR
BHAWANIPATNA
KALAHANDI
BAUDH KHONDMALS
PURI
GANJAM
CHATRAPUR
KORAPUT
ANDHRA PRADESH
BAY OF BENGAL
● STATE CAPITAL
● DISTRICT HEADQUARTERS

industries. One hundred and seventy large and medium industries went into production by the end of 1986. More than 9,000 small scale industries with an investment of Rs. 7,178.86 lakh with employment potential of 64798 persons and 5,42,000—artisan based industries were also established.

The Central Sector Projects are: Steel Plant at Rourkela, Sad Complex at Chhatrapur, Heavy Water Project at Talcher, Coach Repairing Workshop at Mancheswar, Aluminium Complex at Koraput, Captive Power Plant at Talcher, Aluminium Smelter at Talcher and Fertilizer Plant at Paradeep.

Tourist Centres: Bhubaneswar, the present capital of Orissa is known as the cathedral city of India on account of its numerous temples. A complete study of the "Kalinga Style" of architecture from its every inception to maturity spread over a period of about two thousand years is epitomised in the monuments of Bhubaneswar. Places of interest are: Lingaraja Temple, Mukheswar Temple, Ananta Basudeva Temple and Rajarani Temple, the Jain and Buddhist Rock-cut caves of Khandagiri, Udayagiri and Dhauli together with Ashoka's rock edict.

Bhubaneswar is connected to Calcutta and Vizag by daily flights and New Delhi by triweekly Boeing flights. Also there are express trains to Delhi, Calcutta, Madras and Secunderabad and buses to Calcutta, Vizag, Raipur, Ranchi and Tatanagar.

Puri (Jagannath Puri) is a coastal town and beach-resort in Orissa. It is 62 km from Bhubaneswar and is one of the four dhamas (Holy places of pligrimage) in India—the three others being Badri-Kedarnath in the north, Rameswaram in the south and Dwaraka in the west. The presiding deities in the temple are Jagannath Balabhadra and Subhadra. Every year, in June-July (Asadha Sukla Dwitiya), thousands of devotees from all over India and abroad arrive at Puri to participate in the Car-Festival.

Konark is about 65 km from Bhubaneswar and 85 km from Puri. It is famous for the great temple of the Sun-God, conceived as a giant celestial chariot with twenty-four exquisitely carved wheels, drawn by seven impetuous horses. The temple is profusely sculptured with exquisite figures and figurines, fixed by an astonishing energy, trapped in stone. Hirakud Dam, the fourth largest in the world, on Mahanadi, 328 km from Bhubaneswar is another tourist attraction.

Governor: B. N. Pandey; **Chief Minster:** J. B. Patnaik (Congress).

PUNJAB

Area: 50367 sq km; **Capital:** Chandigarh; **Population:** 1,67,88,915; **Language:** Punjabi; **Literacy:** 40.74%

Physiography: Punjab is bounded on the west by Pakistan, on the north by Jammu and Kashmir, on the north east by Himachal Pradesh and on the south by Haryana and Rajasthan. Physically, the state may be divided into two parts, sub-Shivalik strip and Sutlej-Ghaggar Plain. The sub-Shivalik strip covers the upper portion of Ropar, Hoshiarpur and Gurdaspur districts.

The Sutlej-Ghaggar Plain embraces the other districts of the Punjab. The land is highly fertile as they are formed by the tributaries of the Indus, Ravi, Beas, Sutlej and the river Ghaggar.

History. The word "Punjab" is made up of two Persian words 'Panj' and 'Aab', Panj means five and Aab means water. This name was probably given to this land of five rivers possibly in an era when this region came into close contact with Persia. Prior to that period this region was known by different names at different times. Probably, when at the height of its glory it was known as Sapta Sindhu, the land of the seven rivers, namely Sindhu (Indus), Vitasta (Jehlum), Asuhi (Chenab), Purushin (Ravi), Vipasa (Beas), Satadru (Sutlej) and Saruri (Sarasvati). The last one is a dried up stream now and its traces, according to geologists, are found in the present seasonal streams that flow near Pehowa in Haryana. During the Greek occupation, the territory had shrunk into the area covering five rivers.

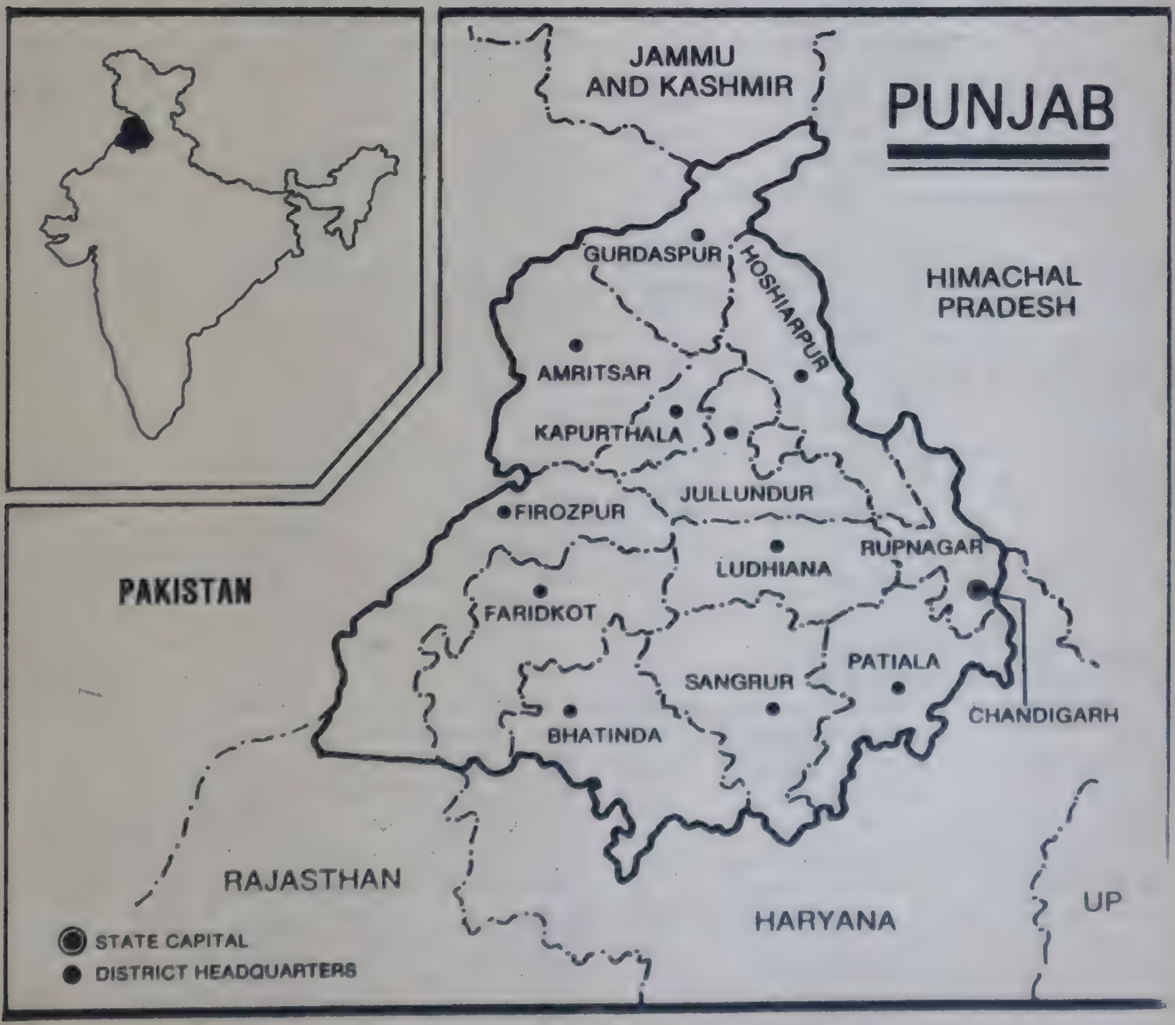
Punjab lies in the north west of India. Being in the way of invaders from the north, Punjab has had to take a lot of battle ring from the invaders. Punjab emerges into history with the coming of the Aryans into India. The Aryans in the early Vedic age apparently settled in the Punjab and its neighbourhood. In 522 BC Darius of Peersia conquered the territories round about the Punjab and made them a Satrapy of Persia. In 326 BC, Alexander the Great overran the Punjab. For a time, Mecedonian governors controlled the Punjab but they were defeated by Chandragupta Maurya, who annexed the entire territory. With the decline of the Mauryan empire the Scythians occupied north west India and after them, the Parthians. The Kushans came next. Thereafter the Punjab continued under indigenous rulers.

From the tenth century AD began a series of Muslim invasions culminating with Babar, the founder of the Mughal Empire. With the decline of the Mughal empire two other Muslim invaders crossed into India, Nadir Shah in 1738 and Ahmed Shah Abdali in 1748, 1750 and 1751, The Punjab had the worst of all these invasions.

The Sikh faith, which played a decisive role in the creation of a Punjabi-speaking state, came into being during a period of religious revival in the 15th and 16th centuries. It was founded as a new religious order by Guru Nanak. He was followed by nine Gurus. The subsequent 200 years witnessed the growth of Sikhism and its transformation into a militant organization.

Guru Angad developed Gurumukhi script by combining the scripts current in north India at that time. Guru Ram Das laid the foundation of the city of Amritsar. Guru Arjun Dev compiled the Adi Granth. His son Guru Har Gobind started training his followers in the military art.

Punjab was annexed to British India by Lord


JAMMU AND KASHMIR
PUNJAB
GURDASPUR
HOSHIARPUR
HIMACHAL PRADESH
AMRITSAR
KAPURTHALA
JULLUNDUR
FIROZPUR
RUPNAGAR
LUDHIANA
PAKISTAN
FARIDKOT
PATIALA
SANGRUR
CHANDIGARH
BHATINDA
RAJASTHAN
HARYANA
UP
◉ STATE CAPITAL
● DISTRICT HEADQUARTERS

Dalhousie in March, 1849. But the spirit of the Punjab remained unvanquished. Through the centuries Punjab became the sword arm of British India.

Punjab was constituted a separate province of India in 1937. With the partition of India, Punjab was divided between India and Pakistan as East Punjab and West Punjab. On Nov. 1, 1956 the Princely States adjoining Punjab were formally absorbed into the Punjab State. On Nov. 1, 1966, Punjab was divided into three units—Punjab comprising the predominantly Punjabi-speaking areas, Haryana made up of the Hindi-speaking districts and Kharar tehsil and Chandigarh the Capital. Hilly areas were transferred to Himachal Pradesh.

Administration. The Legislature is unicameral – the Legislative Assembly. The state is divided into 12 districts.

Districts

District	Area in sq km	Population (1981)	Headquarters
Amristsar	5087	2188490	Amristsar
Bhatinda	5551	1304606	Bhatinda
Faridkot	5740	1436228	Faridkot
Ferozepur	5874	1307804	Ferozepur
Gurdaspur	3562	1513435	Gurdaspur
Hoshiarpur	3881	1243807	Hoshiarpur
Jalandhar	3401	1734574	Jalandhar
Kapurthala	1633	545249	Kapurthala
Ludhiana	3857	1818912	Ludhiana
Patiala	4584	1568898	Patiala
Sangrur	5107	1410250	Sangrur
Ropar	2085	716662	Ropar

State of Economy. Punjab is primarily an agrarian state and agriculture occupies the most prominent place in Punjab's economy. About 70 percent of the people are engaged in agriculture. As against an all India average of 51 percent, it has 85 percent of its area under cultivation. Net area under cultivation is 84 percent as against the all India average of 42.65 percent. Compared to all other states, the fertilizer consumption in Punjab is the highest. The efforts of the state government to provide irrigation facilities, cheap power and agriculture inputs at subsidised rates have acted as a catalyst for agriculture production. Total production of foodgrains rose from 147.77 m tonnes in 1983-84 to 154.50 m tonnes in 1984-85.

Agriculture production is now nearing the saturation point.

As many as 35455 small scale industrial units were set up during the period of three years 1982-83 to 1984-85 as compared to 11607 units set up during the period of 1977-78 to 1979-80, which is an increase of more than 3 times.

The chief manufactures are textiles, sewing machines, sports goods, sugar, starch, fertilizers, bicylces, scientific instruments, electrical goods, machine tools and pine oil.

There were 100899 small scale units registered in the state upto 31-3-1985. These units employed 4,96,000 persons and during 1984 produced goods valued at Rs.1625 crore.

Tourist Centres: Punjab is dotted with places of historical and cultural interest. Ropar, one of the centres of Indus Valley civilization, Amritsar, the city of the Golden Temple, sacred to the Sikhs, the ancient fort of Bhatinda, the architectural monuments of Kapurthala, the City of Gardens, Patiala and Chandigarh the capital designed by the French architect Le Corbusier are among the leading tourist attractions of the state.

Governor: Siddhartha Shankar Ray. Punjab is under President's rule since early 1987.

RAJASTAN

Area: 3,42,239 sq km; **Capital:** Jaipur; **Population:** 3,42,61,862; **Languages:** Hindi and Rajasthani; **Literacy:** 24.38%

Rajasthan is one of the border states of India, sharing India's frontier with Pakistan on the west and northwest. Punjab bounds it on the north, Haryana and Uttar Pradesh on the north-east and east, Madhya Pradesh on the south and south-east and Gujarat on the south-west.

Physiography: Rajasthan is one of the few states of India that show great contrast from one area to another. This disparity is noticeable in respect of climate, soil, vegetation, mineral resources, etc. However, the state may be divided into 6 regions. (1) Western arid region, (2) Semi-arid region, (3) South eastern region, (4) Chambal ravines, (5) Aravalli region and (6) Eastern region.

The western arid region covers the whole of Jaisalmer district, north-western part of Barmer and Jodhpur, south-east Bikaner, south western Churu and western part of Nagaur. This region is characterized by typical desert conditions and forms the largest region in the state.

The semi-arid region lying west of the Aravalli ranges covers the districts of Jalore, Pali, south-eastern Jodhpur and Nagaur, Sikar, Jhunjhunu and north-eastern part of Churu. The southern part of this area is watered by the Luni river while the northern part is an area of inferior drainage.

The Rajasthan canal (named as Indira Gandhi Canal) passes through the north-west portion of this region irrigating at present Ganganagar district and the north western part of Bikaner district.

The Aravalli region covers almost the whole of Udaipur, south eastern part of Pali and Sirohi and the western part of Dungarpur districts. The area is dominated by the mountains of the Aravalli range and outlying hills.

The eastern region comprises the districts of Jaipur, Ajmer, Sawai Madhopur, Bhilwara, Bundi, Alwar, Bharatpur and north-western part of Kota. It is mainly drained by the Banas river and its tributaries. This region has the largest number of industries, located mainly at Jaipur, Ajmer, Kota, Bhilwara and Shahpura.

The south-eastern region embraces the districts of Banswara, Chittorgarh, Jhalawar and Kota. The Kota-Jhalawar area consists of stony uplands but the Chambal river and its tributaries have formed an alluvial basin in Kota.

The Chambal ravine region lies along the river Chambal, where it forms the boundary between Rajasthan and Madhya Pradesh.

History: The State of Rajasthan is an amalgam mainly made up of the old princely states of Rajasthan. It took some eight years for the state to come into its present shape. The first step towards the formation of this state was taken on March 17, 1948 with the formation of the Matsya Union, a Union of four princely states, Alwar, Bharatpur, Dholpur and Karauli. The second step came with the formation of Rajasthan, a Union of 9 states-Banswara, Bundi, Dungarpur, Jhalawar, Kishangarh, Kota, Pratapgarh, Shahpura and Tonk on March 25, 1948. The state of Udaipur joined this union on April 18, 1948, thus transforming the Union into the United States of Rajasthan.

The next two important steps were taken in 1949, the first on March 30, 1949 when the four large states of Bikaner, Jaipur, Jaisalmer and Jodhpur joined the United States of Rajasthan and the second on April 25, 1949 when the Matsya Union joined up. The new union was known as the the United States of Greater Rajasthan. The Union of Greater Rajasthan was further enlarged by the accession to it of the state of Sirohi on Jan. 25, 1950. The final step was taken when the state of Ajmer, the tehsil of Abu and the area of Sunel Tuppa were integrated with Greater Rajasthan on Nov. 1, 1956, to be known simply as Rajasthan.

Administration: The legislature is unicameral—the Legislative Assembly. The state is divided into 27 districts, 84 subdivisions and 203 tehsils.

Districts

District	Population 1981	Area in (sq km)	Headquarters
Ajmer	1440366	8479	Ajmer
Alwar	1771173	8382	Alwar
Banswara	886600	5037	Banswara
Barmer	1118892	28387	Barmer
Bharatpur	1884132	8093	Bharatpur
Bhilwara	1310379	10450	Bhilwara
Bikaner	848749	27231	Bikaner
Bundi	586982	5550	Bundi
Chittorgarh	1232494	10858	Chittorgarh
Churu	1179466	16829	Churu
Dungarpur	682845	3770	Dungarpur
Ganganagar	2029968	20629	Ganganagar
Jaipur	3420574	14000	Jaipur
Jaisalmer	243082	38401	Jaisalmer
Jalore	903073	10640	Jalore
Jhalawar	784998	6216	Jhalawar
Jhunjhunu	1211583	5929	Jhunjhunu
Jodhpur	1667791	22860	Jodhpur
Kota	1559784	12437	Kota
Nagaur	1628669	17718	Nagaur
Pali	1274504	12391	Pali
S. Madhopur	1535870	10593	S. Madhopur
Sikar	1377245	7732	Sikar
Sirohi	542049	5135	Sirohi
Tonk	783635	7200	Tonk
Udaipur	2356959	17267	Udaipur
Dholpur	583156	3000	Dholpur

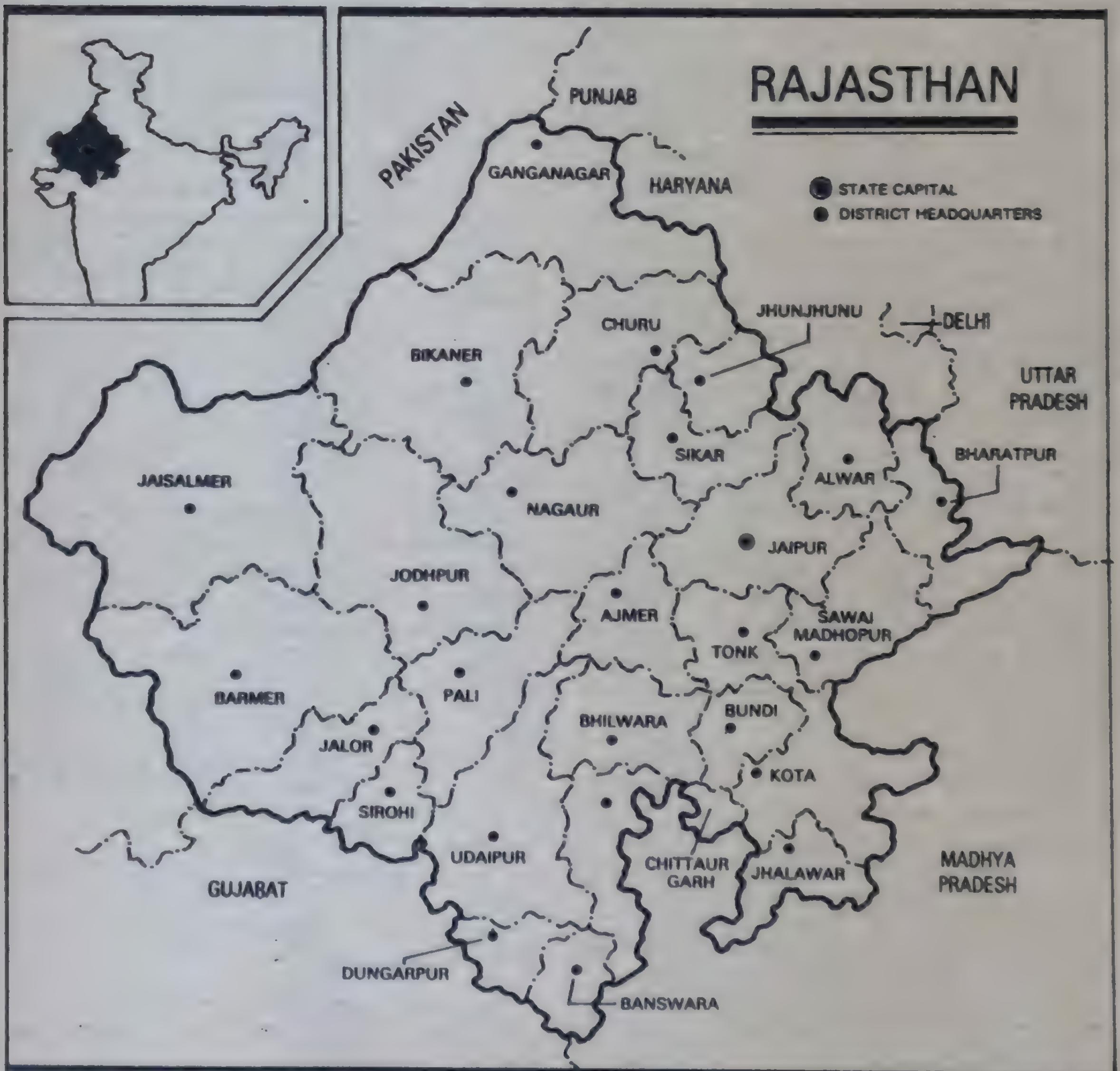
State of Economy. The principal crops are jowar, bajra, maize, wheat, grams, oil-seeds, cotton, sugarcane and tobacco. A deficit state in foodgrains in the pre-independence years, the state achieved an all-time high in farm yield in 1967-68 (66 lakh tonnes). This abundance was followed by two years of want and unprecedented scarcity which shattered the economy of the state. Food grains production in 1986-87 was 70 lakh tonnes.

Textiles, rugs and woollen goods, sugar, cement, glass, sodium, oxygen and acetylene units, pesticides, insecticides and dyes are some of the major industries. Other enterprises include the manufacture of caustic soda, calcium carbide and nylon tyre cord and copper smelting.

Rajasthan handicrafts are famous all over the world. Important handicrafts are marble work, woollen carpets, jewellery, embroidery, articles of leather, pottery and brass embossing.

Tourist Centres. Rajasthan has several sights to offer the tourist, especially in ancient and medieval architecture. Places of interest are Mount Abu, Ajmer, Alwar, Bharatpur, Bikaner, Jaipur, Jodhpur, Udaipur, Pali, Jaisalmer and Chittorgarh. In the year 1985-86 nearly 2.92 lakh foreign tourists and 31.14 lakh home tourists visited Rajasthan.

Governor: Vacant; **Chief Minister:** Hardeo Joshi (Congress).


RAJASTHAN
● STATE CAPITAL
● DISTRICT HEADQUARTERS
PUNJAB
PAKISTAN
GANGANAGAR
HARYANA
CHURU
JHUNJHUNU
DELHI
BIKANER
UTTAR PRADESH
SIKAR
ALWAR
BHARATPUR
JAISALMER
NAGAUR
JAIPUR
JODHPUR
AJMER
SAWAI MADHOPUR
TONK
BARMER
PALI
BUNDI
BHILWARA
JALOR
KOTA
SIROHI
UDAIPUR
CHITTAUR GARH
JHALAWAR
MADHYA PRADESH
GUJARAT
DUNGARPUR
BANSWARA

SIKKIM

Area: 7,096 sq km; **Capital:** Gangtok; **Population:** 3,16,385; **Languages:** Lepcha, Bhutia, Hindi, Nepali, Limbu; **Literacy:** 34%.

Sikkim, the 22nd state of the Indian Union, is a small mountain state in the eastern Himalayas. It is bounded by Tibet on the north, Nepal on the west and Bhutan on the east. West Bengal lies to its south. It is the smallest as well as the least populous state in the Union. Sikkim is strategically important for India. It lies astride the shortest route from India to Tibet.

Sikkim became a state of the Indian Union under the Constitution (Thirty-eighth Amendment) Act, 1975, which came into force with retrospective effect from 26th April, 1975, when the amending bill was originally passed by both Houses of Parliament.

Physiography. The state is entirely mountainous. About a third of the land is covered with dense forests, where sal, simbal, bamboo and other plants thrive. Some of the finest forests lie in the northern-most areas in Lachen and Lachung. Here the mountains rise to elevations of 7000 metres and more. Kanchenjunga (8579 m), the world's third highest peak, rises from this area. The forests here are inaccessible and remain for the most part unexploited.

On an average, Sikkim receives 125 cm rain. But the rainfall varies widely between various regions like sheltered valleys, foothills and high mountains. River Tista and its tributaries drain the state. Tista is a perennial river being both rain-fed and snow-fed.

Sikkim boasts of several hundred different kinds of orchids and is frequently referred to as a botanist's paradise.

The population of Sikkim is mainly made up of the Lepchas, the Bhutias and their allied clans and the Nepalese.

The Lepchas, who are believed to have come from Assam were the first settlers in Sikkim. The Bhutias came from Tibet in the 14th century. The Tsongs are a minority community. In the 18th and 19th centuries the Nepalese came into Sikkim and established themselves. And, today, they form the majority community in the state.

Administration. The state has a unicameral legislature.

Sikkim is divided into four districts.

Districts

District	Area (sq km)	Population (1981)	Head-quarters
East	954	1,38,105	Gangtok
North	4,226	26,390	Mangan
South	750	75,691	Namchi
West	1,166	74,813	Gyalshing

State of Economy. The principal crops are maize, paddy, millet, wheat and barley. Orange and cardamom are the main cash crops. Other important crops are potatoes, apples and buck-wheat.

As the majority of the population depends on agriculture for livelihood, the governments at both the centre and the state have accorded high priority to agriculture. The government has set up 9 regional centres and 7 sub-regional centres for agricultural development. A number of high yielding seeds suitable to local climatic conditions have been developed. The production of seeds in government farms increased from 1590 quintals in 1979-80 to 4266 quintals in 1983-84.

The foodgrains production increased from 57,420 tonnes in 1979-80 to 84,000 tonnes in 1983. Campaigns for amendment of acidic soil and micro-nutrient application have also recorded significant progress.

The research complex of Indian Council for Agricultural Research, set up at Tadong, is doing useful research work.

Sikkim's tea estate at Temi and Kewzing extends over an area of 500 acres. Tea is exported to USSR and West Germany. A coffee plantation has also been started at Majitar on an experimental basis with commendable results.

Sikkim as a whole has been declared industrially backward.

The main industrial units are the Food Preservation Factory at Singtam, Sikkim Tanneries Ltd. at Majitar, Sikkim Flour Mills at Tadong, Sikkim Distilleries at Rangpo and HMT watch assembly unit (Sikkim Time Corporation).

In 1982 Sikkim Time Corporation (SITCO) broke its own record by assembling 3.00 lakh watches. SITCO now proposes to manufacture a million watches every year in technical collaboration with HMT.

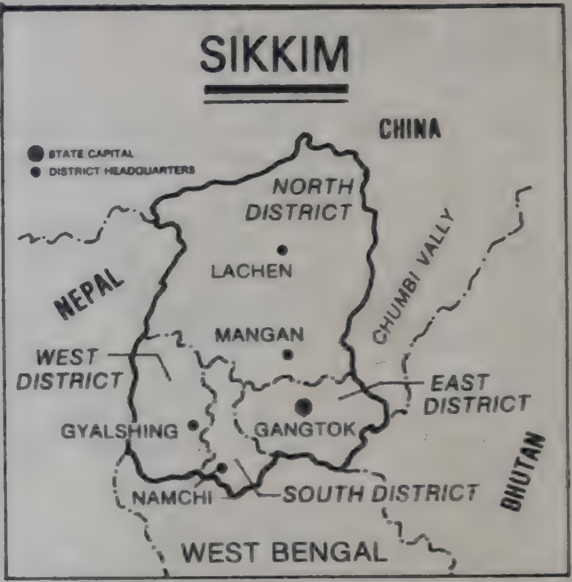
The Rs. 50-lakh Roller Flour Mill set up at Tadong has added an extruder food processing plant since 1983 to produce meals of higher nutritive value for school children under a programme sponsored by UNICEF.

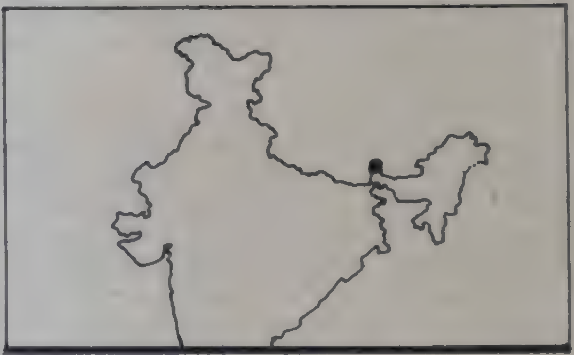
Tourist Centres. Tourism in Sikkim has received a big boost in recent years. One of the most significant developments is the opening of the route from Pemayangtse to Yuksam and from Yuksam to Dzongri for domestic tourists. Rules and regulations governing grant of inner line permits to foreigners have been simplified.

Under a crash programme of creating more accommodation for tourists, a 78-bed tourist hotel at Gangtok and a 50-bed tourist lodge at Pemayangtse in West Sikkim have been constructed. Private hotels have been encouraged to expand hotel accommodation by arranging loans for them at low rates of interest.

With the opening of a Tourist Information Centre in Siliguri (West Bengal), tourists have no longer to go to Darjeeling for getting permits for visiting Sikkim. Tourist Information Centres have been set up also in New Delhi and Calcutta.

The newly opened 'Blue Sheep' restaurant, at the Tourist Information Centre premises meets a long-felt need for a standard restaurant with Indian, Chinese and continental cuisines. One more restaurant-cum-lodge is proposed to be set up at Rumtek Dharma Chakra Centre.





Governor: T. V. Rajeshwar. **Chief Minister:** N. B. Bhandari (Sikkim Sangram Parishad).

TAMIL NADU

Area: 130,058 sq km; **Capital:** Madras; **Population:** 48,408,077; **Language:** Tamil; **Literacy:** 45.78%.

Tamil Nadu is situated on the south eastern side of the Indian peninsula. It is bounded on the east by the Bay of Bengal, in the South by the Indian ocean in the west by the Arabian Sea and the States of Kerala and Karnataka, in the north by Karnataka and Andhra Pradesh. It is the eleventh largest state in India and occupies 4 per cent of the country's total area.

Physiography. The land mass of the state can be divided into two natural divisions; (i) the eastern coastal plain and (ii) the hilly region along the north and the west. The coastal plain is usually sub-divided into (a) the Coromandel plain comprising the districts of Chingleput, South Arcot and North Arcot, (b) the alluvial plain of the Kaveri delta extending over Thanjavur and part of Tiruchirapalli districts and (c) the dry, southern plains in Madurai, Ramanathapuram, Kamaraj, Anna, Kanyakumari, Pasum Pon Muthuramalingam, and Triunelveli Districts.

Along the whole length of the western part, at a distance from the sea varying from 80 to

160 km runs the range of the Western Ghats, a steep and rugged mass averaging 1220 metres above the sea level and rising to 2440 metres at the highest point. The Palghat Gap about 25 km in width is the only marked break in the great mountain wall. To the south of this gap, the range is known as Anamalai (Elephant Hills).

On the east are the Palani Hills on which is situated the famous hill station Kodaikanal. The slopes of the Western Ghats are covered with heavy evergreen forests. These slopes are the sources of the rivers Kaveri, Vaigai and Tamaraparni. The Nilgiris and the Anamalai are the hill groups with the maximum height.

In the famous Ootacamund area of the Nilgiris District, is the highest peak Doddabetta, 2640 metres above the sea level. The so-called Eastern Ghats begin in Orissa and pass through Ganjam district of Orissa and run south west through all the districts lying between Ganjam and Nilgiris plateau.

The rivers of the state flow eastward from the western ghats and are entirely rain-fed. The perennial rivers are:- Palar, Cheyyar, Ponnaiyar, Kaveri, Meyar, Bhavani, Amaravati, Vaigai, Chittar and Tamaraparni. The non-perennial rivers are the Vellar, Noyil, Siruliar, Gundar, Vaipar, Valparai and Varshali. The 760-km-long Kaveri is the great river of the state. Rising on Brahmagiri, a hill in Coorg in the Western Ghats, almost near the Arabian Sea, it travels the entire breadth of the peninsula and forms a large delta at its mouth in the Thanjavur District before flowing into the Bay of Bengal.

History. Tamil Nadu has a very ancient history that goes back some 6000 years. The state represents the nucleus of Dravidian culture in India, which antedated the Aryan culture in India by almost a thousand years. It is generally held that the architects of the Indus Valley Civilizations of the 4th millennium BC were Dravidians and that at a time anterior to the Aryans, they were spread over the whole of India. With the coming of the Aryans into North India, the Dravidians appear to have been pushed into the south, where they have remained confined. Tamil Nadu, with the other southern states, Andhra Pradesh, Karnataka and Kerala, today form the repositories of the Dravidian Culture.

The Dravida country of which modern Tamil Nadu formed a part, was reputedly under three dynasties, Chola, Pandya and Chera from the 4th century BC. The Cholas occupied the present Thanjavur and Tiruchirappalli Districts and surrounding territories and excelled in military exploits. In the 2nd century BC a Chola Prince, Elara, conquered Ceylon (Sri Lanka). The Pandyas excelled in trade and learning. They controlled the districts of Madurai and Tirunelveli and part of South Kerala. A Pandiyan King sent an embassy to the Roman Emperor Augustus in the first century BC. The Cheras were powerful on the west coast in what is, today, Central and North Kerala.

The Pallavas of Kanchi rose to prominence in the 4th century AD and dominated the south for another 400 years. In the sixth century they overran the Chola dominions and carried their arms as far as Ceylon (Sri Lanka). The famous Alvars and Nayanars, sage-poets, flourished during the Pallava era. In the 9th century the last of the Pallavas was defeatd by the Cholas who again became a great power in the south.

In the 13th century the Pandyas became dominant. Their Kingdom was a great centre of international trade. The rise of Vijayanagar spelt the decline of the Pandyas. They were ultimately defeated by Vijayanagar, and their territories were annexed to the Vijayanagar Empire. With the disintegration of the Vijayanagar Empire, Tamil Nadu was parcelled out among several petty kings.

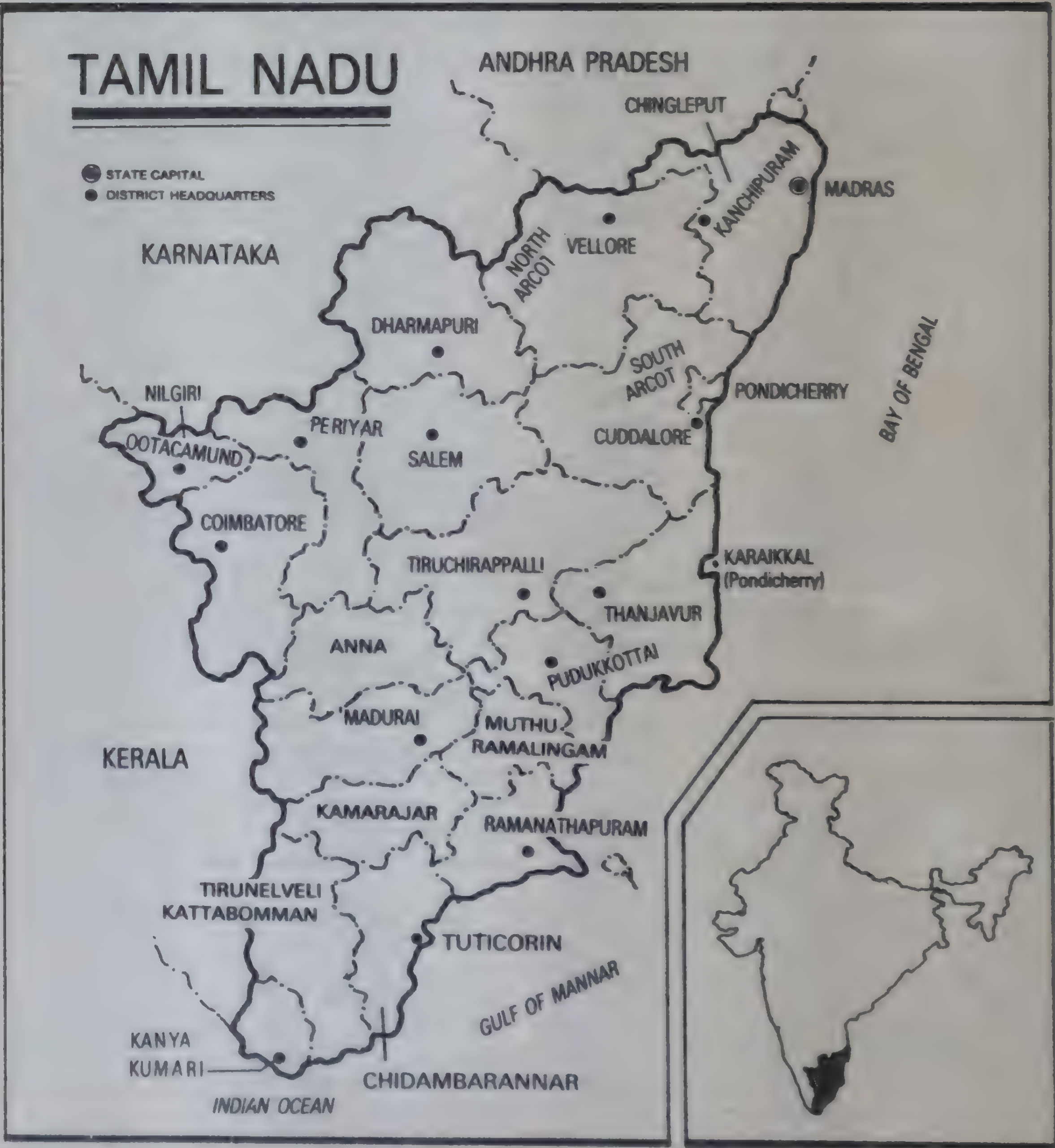
The rise of the Muslim power in India has had its impact on Tamil Nadu, but by and large, Tamil Nadu remained unaffected by the political convulsions in north and central India. With the establishment of the East India Company at Madras in 1639, a new chapter was opened in the history of Tamil Nadu. Slowly but steadily, the whole of Tamil Nadu and most of South India came under British sway.

When India became free, the old Madras province, comprising Tamil Nadu and Andhra Pradesh and part of Kerala, continued as the state of Madras. But the agitation for a separate Andhra state compelled the Government of India to bifurcate the State into two separate States, Andhra Pradesh to include the Telugu-speaking areas and Madras, the Tamil speaking areas. The old capital Madras City was retained by the new Madras State.

Under the States Reorganization Act 1956, Madras lost the Malabar District and the Kasargod taluk of S. Kanara District to the newly formed state, Kerala, while Madras gained four taluks of the Trivandrum District and Shencotta taluk of the Quilon District from Kerala. The four taluks thus gained were constituted into a new district of Madras as the Kanyakumari District. The new Mysore State (Karnataka) absorbed some parts of the old S. Kanara District (excluding Kasargod taluk) and the Kollegal taluk of the Coimbatore District. In April 1960, 405 sq miles of Chittoor District in Andhra Pradesh was transferred to Madras in exchange for 326 sq miles from Chinglepattu and Salem Districts.

On Jan. 14, 1969, Madras State changed its name to Tamil Nadu. However, the capital city is still known by its old name, Madras.

Administration. The legislature consists of one house - the Legislative Assembly. The


TAMIL NADU
STATE CAPITAL
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ANDHRA PRADESH
CHINGLEPUT
KANCHIPURAM
MADRAS
KARNATAKA
NORTH ARCOT
VELLORE
DHARMAPURI
SOUTH ARCOT
PONDICHERRY
BAY OF BENGAL
NILGIRI
OOTACAMUND
PERIYAR
SALEM
CUDDALORE
COIMBATORE
KARAIKKAL (Pondicherry)
TIRUCHIRAPPALLI
THANJAVUR
ANNA
PUDUKKOTTAI
MADURAI
MUTHU RAMALINGAM
KERALA
KAMARAJAR
RAMANATHAPURAM
TIRUNELVELI KATTABOMMAN
TUTICORIN
GULF OF MANNAR
KANYA KUMARI
CHIDAMBARANNAR
INDIAN OCEAN

Legislative Council was abolished in 1986.

The state is divided into 20 districts.

Districts

District	Area (sq km)	Population 1981	Head-quarters
Chengalpattu	7920	3616508	Kancheepuram
Coimbatore	10873	3060184	Coimbatore
Dharmapuri	9643	1997060	Dharmapuri
Kanyakumari	1684	1423399	Nagercoil
Madras	128	3276622	Madras
Madurai	6558	2971489	Madurai
Anna	5836	156448	Dindigul
Nilgiris	2549	630169	Ootacamund
N. Arcot	12265	4414324	Vellore
Periyar	4800	2068462	Erode
Pudukkottai	4137	1156813	Pudukkottai
Ramanathapuram	4217	1021764	Ramanathapuram
Kamaraj	4175	1340907	Virudhunagar
Pon Muthuramalingam	4186	972766	Sivagangai
Salem	8643	3441717	Salem
S. Arcot	10898	4201869	Cuddalore
Thiruchirappalli	11208	3612320	Thiruchirappalli
Thanjavur	8670	4063545	Thanjavur
Tirunelveli	11433	3573751	Tirunelveli
*Chidambarannar	—	—	Tuticorin

* Chidambarannar Dt. was carved out of Tirunelveli Dt. in September, 1986.

State of Economy. Agriculture is the mainstay of Tamil Nadu's economy. The yield of rice amounting to 2.5 tonnes per hectare is among the highest in India. At the end of the 6th Plan, Tamil Nadu achieved a production level of 69.17 lakh tonnes of rice and other cereals, 3.42 lakh tonnes of pulses and 13.42 lakh tonnes of oil seeds.

Tamil Nadu's sugar-cane yield of 100 tonnes per ha is a world record. About 3.5 lakh acres have sugar cane grown on them. Cotton is grown 2.8 lakh ha.

The principal plantation crops are tea and coffee.

Tamil Nadu accounts for nearly one fourth of the spinning capacity in India, one fifth of cement, caustic soda and nitrogenous fertilisers and one tenth of the nation's production of sugar, bicycles and calcium carbide. Tamil Nadu produces 60% of safety matches and 77% of finished leather.

The Tamil Nadu Industrial Development Corporation (TIDCO), State Industries Promotion Corporation of Tamil Nadu (SIPCOT) and TIIC are the major Corporations set up to provide financial assistance and technical knowhow to large, medium and small scale industries. With the aid of these Corporations, industrial complexes called growth centres and industrial estates have been provided in different parts of Tamil Nadu — Hosur, Ranipet, Guindy, Ambattur, Karaikudi, Sivaganga, Paramakudi and Tiruchirappalli.

Tourist Centres. Tamil Nadu Toursim Development Corporation runs a chain of 17 hotels, 1 Beach Resort and 10 Youth Hostels.

It has also constructed Boat houses at Muthukkadu, Ootty, Pichavaram and Yercaud.

Hill Stations: Uthagamandalam (Ootty), Kodaikanal and Yercaud.

Religious Places: Suchindram, Rameswaram, Tiruchendur, Madurai, Palani, Tiruchirapalli, Srirangam, Thanjavur, Kumbakonam, Nagore, Velankanni, Vaitheeswaran Koil, Chidambaram, Tiruvannamalai, Kancheepuram, Tiruttani and Kanyakumari.

Tourist Centres: Mamallapuram, Poompuhar, Pitchawaram, Point Calimere, Courtallam, Hogenakkal, Anamalai Sanctuary, Mudumalai Sanctuary, Vedanthangal Bird Sanctuary, Kalakkad and Vandaloor Zoo and Mundathurai Sanctuary.

At Madras: Fort St. George, Fort Museum, Marina Beach, Snake Park, Guindy Park, Guindy Deer Sanctuary and Children's Park, Egmore Museum, Valluvarkottam Park, Crocodile and Vandaloor Zoo, Muthukkadu Boat House.

Governor: S. L. Khurana. **Chief Minister:** M. G. Ramachandran (AIADMK).

TRIPURA

Area: 10,486 sq km; **Capital:** Agartala; **Population:** 2,053,058; **Languages:** Bengali, Kakbark and Manipuri; **Literacy:** 41.58%.

Tripura is the second smallest state in India. It was formally declared a Union Territory on November 1, 1957 and elevated to the status of a full-fledged state on January 21, 1972.

Physiography. Tripura is surrounded by Bangladesh on all sides, except for a narrow neck in the north-east, where it borders on Assam and Mizoram.

History. Tripura was a Hindu state of great antiquity having been ruled by the Maharajas for 1,300 years before its accession to the Indian Union on October 15, 1949. With the reorganization of states on Sept. 1, 1956 Tripura became a union territory. The territory was made a state on January 21, 1972.

Administration. The Legislature has a single chamber—the Legislative Assembly. The jurisdiction of the Guahati High Court extends over Tripura, with a bench functioning at Agartala.

Tripura is divided into three districts, 10 administrative sub-divisions, 177 tashils and 5215 villages.

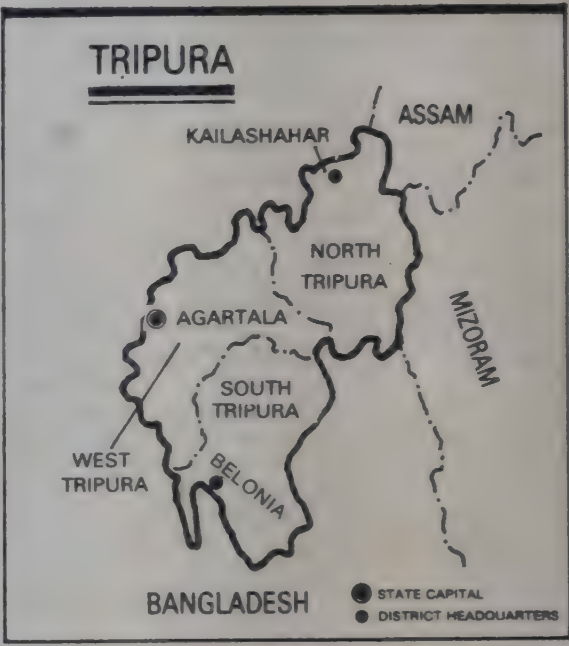
Districts

District	Area (sq km)	Population
North Tripura	3,541	5,41,248
West Tripura	3,359	9,76,252
South Tripura	3,577	5,35,558

State of Economy. About 54.5% of the land is under forest. Only about 24.3% area is available for agricultural use. The principal crops are paddy, wheat, jute, mesta, sugarcane, potato and oil seeds. Agriculture is being practised in about 2.5 lakh ha. Overall production of cereals decreased by about 2.1% in 1984-85.

Tea is a major industry in Tripura. There were 49 registered tea gardens covering an area of 5.527 lakh hectares and producing 45 lakh kg of tea per year. This industry has been employing about 10,000 workers. Three Workers' Co-operative Societies have been formed for tea plantations. Tripura Tea Development Corporation, a Government of Tripura undertaking, has also started new plantations under the programme for bringing additional land under tea plantation in the state.

The jute mill set up in Agartala under the public sector produces about 20 tonnes of jute products per day and it employs about 2,000 persons.



The major small scale industries which are functioning in the state are aluminium utensils, saw mill, steel furniture, carpentry, dry battery, pharmaceuticals, rice mill, washing soap, R.C.C. spun pipes, PVC pipes, flour mill, aluminium conductors, leather goods, polythene pipe, plywood, fruit canning, candle, oil mills, etc.

Handloom is the single largest industry in the state. Weaving is essentially a tribal household industry. Nine pilot centres are running in different parts of the state for imparting training in improved techniques and producing quality handloom goods. Tripura Handloom & Handicrafts Development Corporation sells their products. Apex Weavers' Society caters to the needs of about 50 Primary Weavers Co-operative Societies. The organizations have been marketing products worth Rs. 3 crore a year on an average. About 7000 weavers have been getting benefits.

The sericulture industry in the state is developing fast. The area under cultivation of mulberry is about 1200 acres and production of cocoon is estimated to be 5000 kg per year. A design centre on handicrafts is functioning at Agartala. About 5000 craftsmen are now engaged in production of handicrafts (mainly cane and bamboo) products.

Tourist Centres. Important tourist centres are Nirmahal, Sipahijala, Dumboor Lake, Kamalasagar, Jumpui Hill, Unakoti and Matabari.

Governor: Gen. K. V. Krishna Rao (Retd.).
Chief Minister: Nripen Chakraborty (CPI(M).

UTTAR PRADESH

Area: 2,94,411 sq km; **Capital:** Lucknow; **Population:** 11,08,62,813; **Language:** Hindi; **Literacy:** 27.38%.

Uttar Pradesh is the most populous state in India. In area, it ranks fourth, after M.P., Rajasthan and Maharashtra. It covers about 9 per cent of the total area of India.

Physiography. Uttar Pradesh is bounded by Tibet and Nepal in the north, Himachal Pradesh in the northwest, Haryana in the west, Rajasthan in the southwest, Madhya Pradesh in the south and southwest and Bihar in the east.

Uttar Pradesh can be divided into three distinct regions: (1) northern mountains, (ii) southern hills and plateau and (iii) the Ganga plain.

1. The lofty Himalayas embraces Uttar Kashi, Chamoli, Pithoragarh, Tehri-Garhwal, Garhwal and Almora districts, Nainital tehsil of Nainital district and Chakrata tehsil and a part of Dehra Dun tehsil of Dehra Dun district in the north, covering about one-sixth of the total area of the state.

2. This region covers almost the whole of Jhansi, Jalaun, Hamirpur and Banda districts, the Meja and Karchhana tehsils of Allahabad district, nearly the entire Mirzapur district south of the Ganga river and the Chakia tehsil of Varanasi district. The altitude in this area does not generally exceed 300 metres above mean sea level.

3. Between the Himalayas in the north and the hills and plateau in the south lies a vast homogeneous alluvial plain, one of the largest in the world. Because of the deep alluvium strata the region is almost devoid of minerals, which partly accounts for the very insignificant industrial development of U.P. On the other hand, its high fertility has led to heavy pressure of population on land.

The state has a tropical climate except for the Himalayan region which has a temperate climate.

The main rivers of the state from west to east are the Yamuna, Ganga, Ramganga, Gomati and the Ghhaghara. All the rivers, except the Gomati, emerge from the Himalayas. The Yamuna and the Ganga flow from north-east to south-west in their upper mountainous courses, from north to the south in western parts of the state and thereafter from north-west to south-east, joining at Allahabad.

History. Uttar Pradesh has a very ancient and colourful history. Although the state does not find mention in the Rig Veda, it is recognised in the later vedic age as Brahmarshi Desa or Madhya Desa. Many of the great sages of the Vedic times like Bharadwaja, Yajnavalkya, Vasishta, Viswamitra and Valmiki appear to have flourished in U.P. Many sacred books of the Aryans were also composed here. Varsha Purana, for example, is associated with Mathura.

The two great epics of India, the Ramayana and the Mahabharata, appear to have been inspired by U.P. The Ramayana features the royal family of Kosala and the Mahabharata centres round the royal family at Hastinapura, both in Uttar Pradesh.

In the 6th century BC, UP was associated with two new religions, Jainism and Buddhism. Mahavira, the founder of Jainism, is said to have breathed his last at Doora in U.P. It was at Saranath, again in U.P., that the great Buddha preached his first sermon and laid the foundations of his order. In the post-Buddhist perod several centres in UP, like Ayodhya, Prayag, Varanasi and Mathura became reputed centres of learning. Sri Sankaracharya, the great Hindu reformer established one of his ashrams at Badrinath in U.P.

In the mediaeval period UP passed under Muslim rule and led the way to a new synthesis of Hindu and Islamic cultures. Ramananda and his Muslim disciple Kabir, Tulasidas and Birbal and many other intellectuals contributed to the growth of Hindi and Urdu. Urdu remains the perfect synthesis of Hindu and Muslim cultures.

Uttar Pradesh kept up its intellectual leadership under the British administration. The British combined Agra and Oudh into one province called the United Provinces of Agra and Oudh. The name was shortened to United Provinces in 1935. After independence in January, 1950, the United Province was renamed Uttar Pradesh.

Administration. The state has a bicameral legislature—the Legislative Assembly and the Legislative Council.

The state is divided into 57 districts as under. Kanpur district was bifurcated into Kanpur (Urban) and Kanpur (Rural) districts with effect from April 23, 1981.

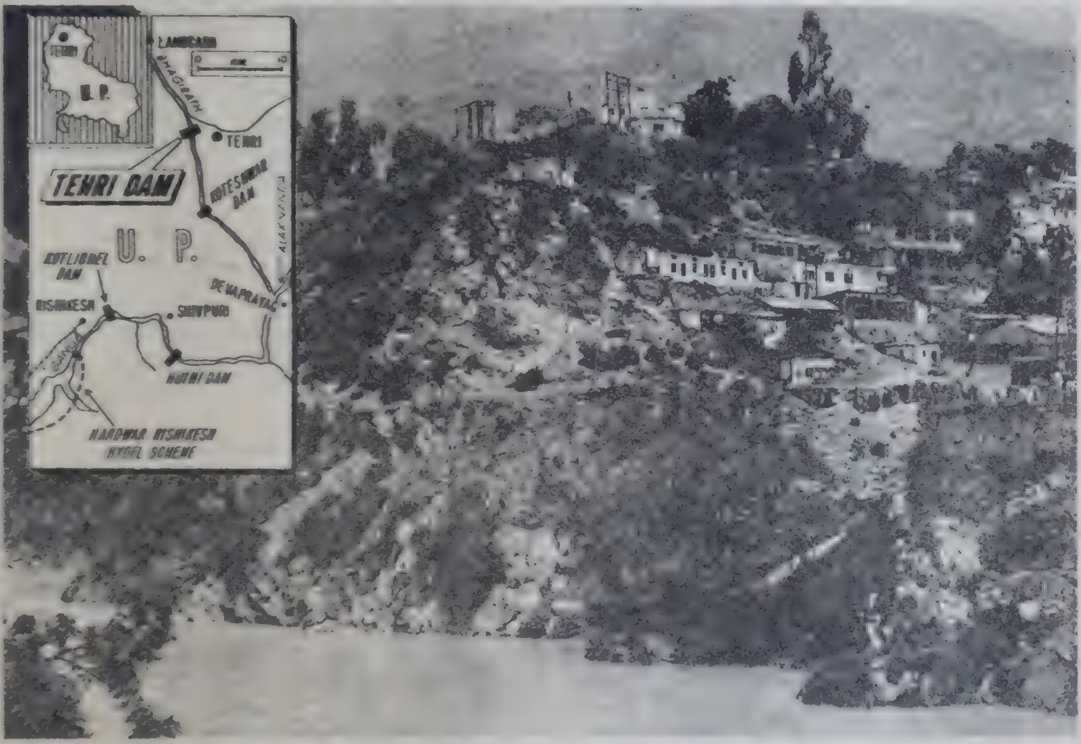
Districts

Districts	Area (sq km)	Population (1981 census	Headquarters
Agra	4,805	28,52,942	Agra
Aligarh	5,019	25,74,925	Aligarh
Allahabad	7,261	37,97,033	Allahabad
Almora	5,385	7,57,373	Almora
Azamgarh	5,740	35,44,130	Azamgarh
Bahraich	6,877	22,16,245	Bahraich
Ballia	3,189	19,45,376	Ballia
Banda	7,624	15,33,990	Banda
Bara-Banki	4,401	19,92,074	Bara Banki
Bareilly	4,120	22,73,030	Bareilly
Basti	7,228	35,78,069	Basti
Bijnor	4,848	19,39,261	Bijnor
Budaun	5,168	19,71,946	Budaun
Bulandshahr	4,352	23,58,270	Bulandshahr
Chamoli	9,125	3,64,346	Chamoli
Dehra Dun	3,088	7,61,668	Dehra Dun
Deoria	5,445	34,96,564	Deoria
Etah	4,446	18,58,692	Etah
Etawah	4,326	17,42,651	Etawah
Faizabad	4,511	23,82,515	Faizabad
Farrukhabad	4,274	19,49,137	Fatehgarh
Fatehpur	4,152	15,72,421	Fatehpur
Garhwal	5,440	6,37,877	Pauri
Ghazipur	3,377	19,44.669	Ghazipur
Ghazialbad	2,590	18,43,130	Ghaziabad
Gonda	7,352	28,34,562	Gonda
Gorakhpur	6,272	37,95,701	Gorakhpur
Hamirpur	7,165	11,94,168	Hamirpur
Hardoi	5,986	22,74,929	Hardoi
Jalaun	4,565	9,86,238	Orai
Jaunpur	4,038	25,32,734	Jaunpur
Jhansi	5,024	11,37,031	Jhansi
Kanpur (Rural)	5,848	20,08,731	Kanpur
Kanpur (Urban)	337	17,33,492	Kanpur
Kheri	7,680	19,52,680	Kheri
Lalitpur	5,039	5,77,648	Lalitpur
Lucknow	2,528	20,14,574	Lucknow
Mainpuri	4,343	17.26.202	Mainpuri
Mathura	3,811	15.60.447	Mathura
Meerut	3,911	27,67,246	Meerut
Mirzapur	11,310	20,39,149	Mirzapur
Moradabad	5,967	31,49,406	Moradabad
Muzaffarnagar	4,176	22,74,487	Muzaffarnagar
Naini Tal	6,794	11,36,523	Naini Tal
Pilibhit	3,499	10,08,312	Pilibhit
Pithoragarh	8,856	4,89,267	Pithoragarh
Pratapgarh	3,717	18,01,049	Pratapgarh
Rae Bareli	4,609	18,86,940	Rae Bareli
Rampur	2,367	11,78,621	Rampur
Saharanpur	5,595	26,73,561	Saharanpur
Shahjahanpur	4,575	16,47,664	Shahjahanpur
Sitapur	5,743	23,37,284	Sitapur
Sultanpur	4,436	20,42,778	Sultanpur
Tehri-Garhwal	4,421	4,97,710	Narendranagar
Unnao	4,558	18,22,591	Unnao
Uttarkashi	8,016	1,90,948	Uttarkashi
Varanasi	5,091	37,01,006	Varanasi

State of Economy. U.P. is the largest producer of food-grains and oilseeds in the country. It leads all the states in India in the production of wheat, maize, barley, gram, sugarcane and potatoes.

Among food crops, wheat, rice, gram, maize and barley are important in the state. The production of wheat was 160 lakh tonnes during 1986-87, while barley touched the target of 7.60 lakh tonnes. All in all, U.P. produces about 20.6 per cent of the country's total foodgrains.

Tehri Dam: The Controversy



Historic Tehri Town: Days are numbered.

The massive Tehri Dam proposed to be built across the Bhagirathi river in the Garhwal hills in Uttar Pradesh has unleashed fierce controversy between the government and environmentalists. The Rs.2400 crore project is opposed by the Tehri Dam Virodhis Sangharsh Samiti and supported by the Indian National Trust for Art and Cultural Heritage (INTACH) and the World Wildlife Fund (India).

Calling the project a prescription for disaster, the protesters argue that it could lead to unprecedented devastation not only in areas around the project-site but also in thickly populated townships like Rishikesh and Hardwar that fall downstream. "It is technically unfeasible, geologically a blunder, economically unsound and environmentally disastrous", says a petition submitted by the Samiti before the superme court. It pleaded for the immediate abandonment of the project if human life and environment in the already brittle ecosystem of the Tehri-Garhwal hills are to be protected.

The government on the other hand argue that the project will invigorate industrial and economic activity in the Ganga basin. The construction is already halfway. When completed by 1990 it is expected to generate 2,400 megawatts of power and irrigate 27 lakh hectares of land. The project implemented with the technical and economic help of the Soviet Union will result in one of the highest dams in the world.

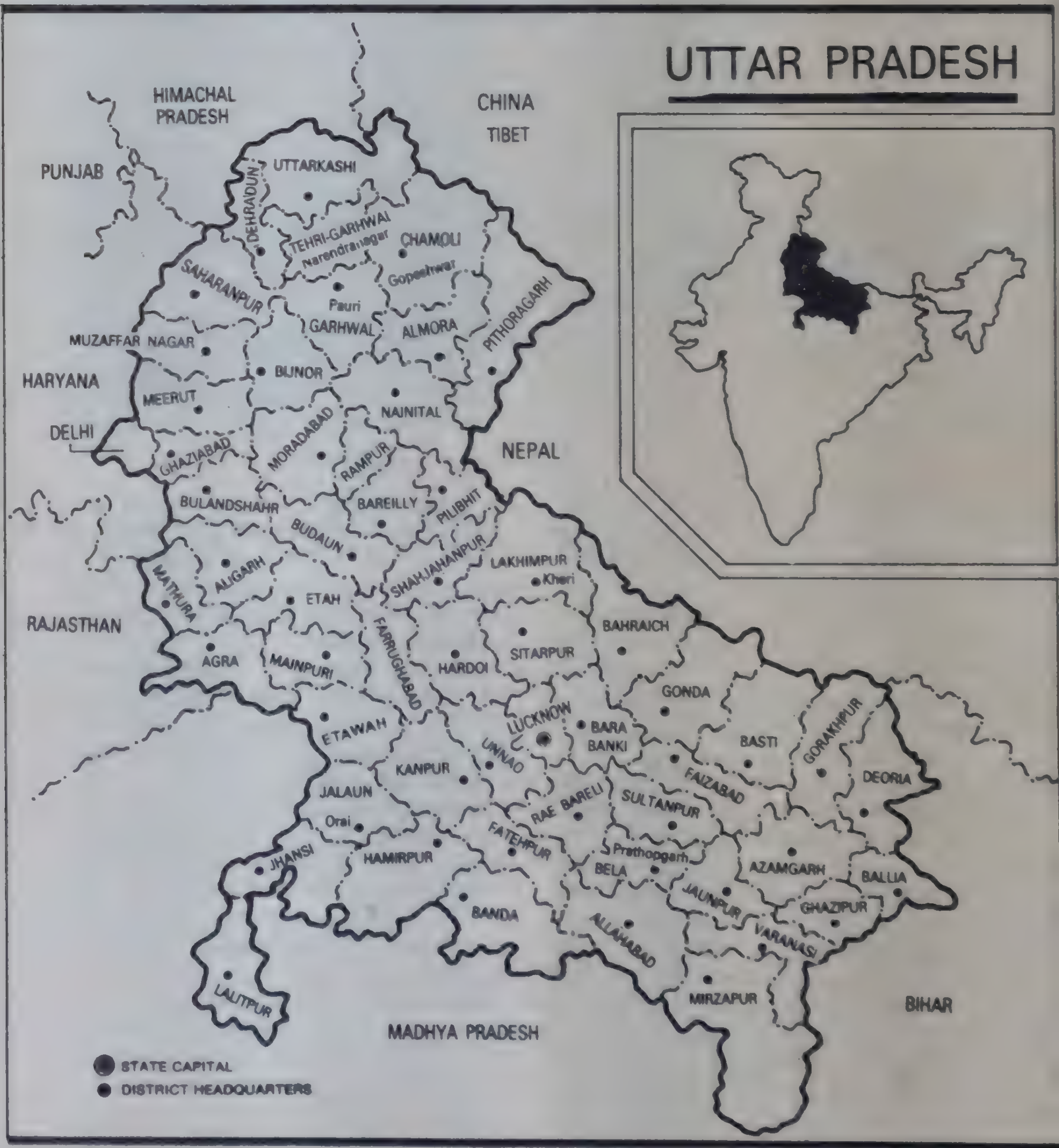
The reservior will submerge Tehri town and 23 surrounding villages. Another 72 villages will be partly affected. Some 70,000 people will be displaced; 1000 hectares of cultivated land, 1000 hectares of forest and 2000 hectares of pastures will be flooded.

However, the union government denies either the seismic sensitivity of the dam site or the existence of faults in the earth's crust below and along the reservoir site. They are confident that with modern technology and Soviet expertise they can "construct a safe engineering structure".

Among cash crops, production of rapeseed and mustard was more than 11.73 lakh tonnes. The state produces about one-half of the total sugarcane output in the country. During the year 1986-87, the state produced 68,000 thousand bales of jute.

Until recently the organized industrial sector of U.P. was confined to agro-based industries such as sugar, cotton textiles, edible oils, miscellaneous food preparations, paper, etc. However, of late, electricity generation, railroad equipment, electrical machinery, basic industrial chemicals, aluminium and cement factories have sprung up.

Sugar, cotton textiles and miscellaneous food preparations (mainly comprising edible oils including hydrogenated oils) are the three important industries in the large scale sector.


UTTAR PRADESH
HIMACHAL PRADESH
CHINA
TIBET
PUNJAB
UTTARKASHI
DEHRADUN
TEHRI-GARHWAL
Narendranagar
CHAMOLI
Gopeshwar
SAHARANPUR
Pauri
GARHWAL
ALMORA
PITHORAGARH
MUZAFFAR NAGAR
HARYANA
BIJNOR
MEERUT
NAINITAL
DELHI
MORADABAD
GHAZIABAD
RAMPUR
NEPAL
BULANDSHAHR
BAREILLY
PILIBHIT
BUDAUN
SHAHJAHANPUR
LAKHIMPUR
Kheri
MATHURA
ALIGARH
ETAH
RAJASTHAN
FARRUGHABAD
BAHRAICH
SITARPUR
AGRA
MAINPURI
HARDOI
GONDA
LUCKNOW
BARA BANKI
BASTI
GORAKHPUR
ETAWAH
UNNAO
FAIZABAD
DEORIA
KANPUR
JALAUN
RAE BARELI
SULTANPUR
Orai
FATEHPUR
Prathopgarh
JHANSI
HAMIRPUR
BELA
AZAMGARH
BALLIA
JAUNPUR
GHAZIPUR
BANDA
ALLAHABAD
VARANASI
LALITPUR
MIRZAPUR
BIHAR
MADHYA PRADESH
STATE CAPITAL
DISTRICT HEADQUARTERS

Till March, 1984, 4,053 industrial licences, letters of intent and DGTD registration were issued with an investment of Rs. 78,340 million.

Production in Kajrahat cement factory in Mirzapur district has already started. Auto tractors, Pratapgarh, have started commercial production of 'Pratap-284' model tractor. Leather industry also is fast coming up. As many as 1,10,710 small scale industries had been established by the end of the Sixth Plan period. During 85-86 16584 units and during 86-87 18,893 units were setup.

By the end of 86-87, there were 1,46,187 small scale industries with an investment of Rs. 2830 crore. These had an employment potential of 11,02,295 persons.

Handloom industry meets nearly one-third of the total requirement of cloth in the state. During the year 1986-87, the production of handloom cloth was 640 million metres.

A sizing plant with an intake capacity of 0.58 million kilograms and costing Rs. 2.75 million is being set up at Kashipur. Five spinning mills, having a total of 25,000 spindles, are being set up, with an expenditure of Rs. 520 million. Besides, seven new co-operative spinning mills are being set up, involving an expenditure of Rs. 617 million. These units are likely to provide employment to 7,000 persons.

Tourist Centres. Uttar Pradesh has a treasure of rare scenic beauty spots, rich fauna and flora, ideal health resorts, high mountain peaks, fascinating rivers and captivating valleys.

The world-renowned Valley of Flowers, Yamunotri, Gangotri, Kedarnath, Badrinath, Hemkund, Pindari Glacier and hill resorts of rare charm, like Naini Tal and Mussoorie, Ranikhet and Almora attract ever increasing number of tourists. Places like Sravasti, Sarnath, Kushinagar, Sankisa and Kaushambi attract pilgrims both from within and outside the country.

Besides ancient places of pilgrimage like Varanasi, Naimisharanya, Prayag and Hardwar are also situated in the state. Places like Agra, Ayodhya, Sarnath, Varanasi, Lucknow, Mathura and Prayag have rich treasures of Hindu and Islamic architecture.

Governor: Mohammad Usman Arif. **Chief Minister:** Vir Bahadur Singh (Congress).

WEST BENGAL

Area 87,853 sq km; **Capital:** Calcutta; **Population:** 5,45,80,647; **Language:** Bengali; **Literacy:** 40.94%.

West Bengal covers the bottleneck of India in the east, stretching from the Himalayas in the north to the Bay of Bengal in the south. It is bounded on the north by Sikkim and Bhutan, on the east by Assam and Bangladesh, on the south by the Bay of Bengal and on the west by Orissa, Bihar and Nepal.

Physiography. West Bengal has two natural divisions, the Himalayan north comprising the districts of Darjeeling, Jalpaiguri and Cooch Behar and the alluvial plain that lies south of it. Darjeeling, the nothernmost district has a maximum elevation of 3658 m above the sea level. The Jalpaiguri and Cooch Behar districts are low-lying areas watered by swift-flowing rivers like the Tista, the Torsa, the Jaldhaka and the Ranjit. The southern part is a thickly populated level expanse of rice fields, dotted with mango, cocount and banana gardens. This vast alluvial plain is the handiwork of many big rivers, the chief of which are the Bhagirathi and its tributaries— the Mayurakshi, the Damodar, the Kangsabati, and the Rupnarayan. The Bhagirathi, called Hooghly in its lower reaches, is itself a branch of the Ganga and provides Calcutta its link with the sea.

The entire state belongs of the high rainfall region. Rainfall varies from 1006 mm in the South Western region to 2933 mm in the northern region. However the state capital receives normal rainfall i.e. 1605 mm.

History. The old Bengal (of which W. Bengal forms a part) known as Gauda or Vanga in ancient Sanskrit literature appears to have been celebrated from the epic period. The Mahabharata refers to the King of Vanga as an ally of the Kauravas in their war against the Pandavas. Apparently at the time of Aryan penetration into the east, Vanga had a well-settled civilization and culture.

In the 3rd century B.C Bengal was part of the Mauryan Empire and from the 4th to the 6th centuries. A.D., it was under the Gupta dynasty. By about A.D. 800, Bengal had its own dynasty of independent kings, the Palas. The Palas were very powerful and expanded their territories into the neighbouring countries of Bihar, Orissa and Assam.

At the height of their power they had diplomatic relations with the Indonesian king Sri Vijaya. In the 11th century, Bengal passed under the rule of a new dynasty, the Senas. The Senas who ruled from their capital at Nadia were driven out by Qutbud Din, the Sultan of Delhi and Bengal became a part of the Delhi Empire. With the death of Aurangzeb, the last of the great Mughals, Bengal became independent under its Muslim governors. Siraj Daula, the last independent Muslim ruler of Bengal, was defeated by the British at the battle of Plassey in 1757. For about seven years the British were in a sort of dual control with the successors of Siraj Daula, Mir Jaffar and Mir Kasim. In 1764 Mir Kasim was routed at the battle of Buxar and the British took over the administration of Bengal.

When Bengal was first constituted by the British as a province it was a vast area, including present-day Bihar and Orissa and extended westwards upto Agra. In 1863 Agra was detached from Bengal but Assam was added to it. In 1874 Assam was formed into a separate province.

In 1905 Lord Curzon divided Bengal into two provinces. A new province called Assam and East Bengal with its capital at Dacca was carved out of old Bengal. The rest of the territory together with Bihar and part of Orissa formed Bengal. This event, known as the partition of Bengal, aroused the dormant patriotism of the Bengalis, who opposed the partition as an attempt at disintergrating Bengal. The rest of India stood by Bengal and troubles broke out.

Peace was restored in 1911,when the partition was abrogated by a declaration of King George V at the Royal Durbar in Delhi. Another change announced at the Durbar was the shifting of the capital from Calcutta to Delhi. The new Bengal did not include Assam or Bihar. It was a compact area of over 200,500 sq km.

When India became independent in 1947, Bengal was partitioned between India and Pakistan. While Pakistan's share came to be called East Pakistan, India's share was called West Bengal. In 1950 the Princely State of Cooch Behar was merged into West Bengal. The former French enclave of Chandranagore was added on Oct. 2,1954. Under the States Reorganization Act, some parts of Bihar were transferred to Bengal.

Administration. The legislature is unicameral—the Legisaltive Assembly. The state is divided into 17 districts.

Districts

District	Area in (sq km)	Population	Headquarters
Bankura	6881	2374815	Bankura
Birbhum	4550	2095829	Suri
Bardhaman	7028	4835388	Burdwan
Calcutta	104	3305006	Calcutta
Cooch Behar	3386	1771643	Cooch Behar
Darjeeling	3075	1024269	Darjeeling
Hooghly	3145	3557306	Chinsurah
Howrah	1474	2966861	Howrah
Jalpaiguri	6245	2214871	Jalpaiguri
Malda	3713	2031871	English Bazar
Midanpore	14081	6742796	Midnapore
Murshidabad	5341	3697552	Berhampore
Nadia	3927	2964253	Krishnagore
Purulia	6259	1853802	Purulia
North 24-Par-	14136	10739439	Barasat
ganas	5206	2404947	Alipore
South 24-Par-			Balurghat
ganas			
W. Dinajpore			

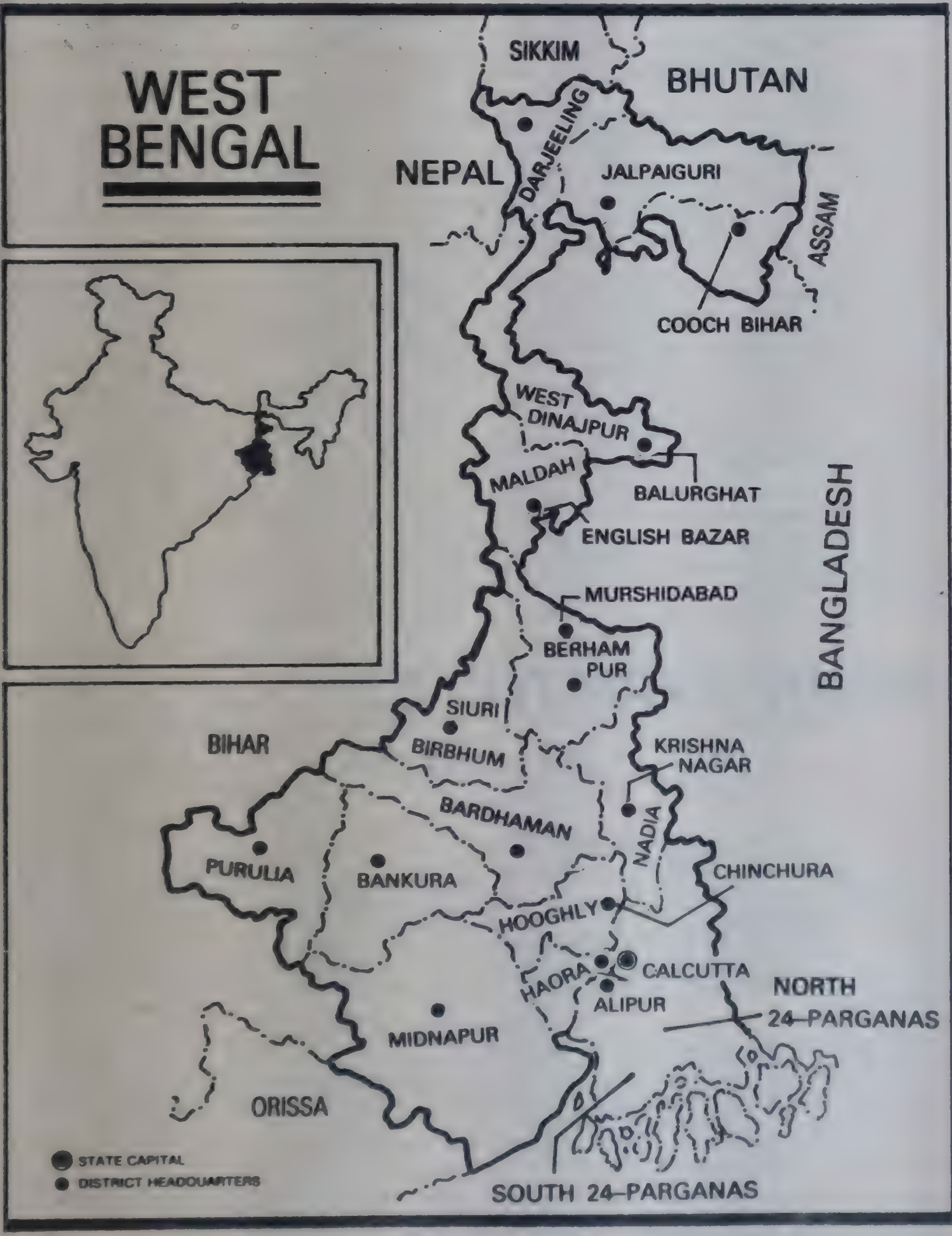
The three-tiered panchayat system is with 3305 Gram Panchayats at base, 339 Panchayat Samities at the Community Block (intermediate) level and 16 Zilla (district) Parishads at the apex. The last Panchayat election took place in May, 1983. Total number of seats at different levels stands at 55,495. The Panchayat institution acts as agencies for implementing development programmes.

State of Economy. West Bengal ranks second in rice production and fourth in national foodgrain production. Rice is one of the principal crops in West Bengal. It occupies 5078.7 thousand hectares (85-86). The state alone accounts for 6.4% of the total foodgrain production of the country (1984-85).

Among cash crops jute, mesta and tea dominate. West Bengal produces 57.3% of India's jute and mesta (84-85) and 24.2% of tea (1984) and 24.9% of potato (1984-85).

Oilseeds cover 371.0 thousand hectares (85-86) crops and contribute 15.0% of All-India production (84-85). Home production only meets a fraction of the state's requirements. Much of this commodity is imported from nearby states.

The Left Front Government of West Bengal


WEST BENGAL
SIKKIM
BHUTAN
NEPAL
DARJEELING
JALPAIGURI
ASSAM
COOCH BIHAR
WEST DINAJPUR
BALURGHAT
MALDAH
ENGLISH BAZAR
MURSHIDABAD
BANGLADESH
BERHAMPUR
SIURI
BIHAR
BIRBHUM
KRISHNA NAGAR
BARDHAMAN
NADIA
PURULIA
BANKURA
CHINCHURA
HOOGHLY
CALCUTTA
HAORA
ALIPUR
NORTH 24-PARGANAS
MIDNAPUR
ORISSA
SOUTH 24-PARGANAS
● STATE CAPITAL
● DISTRICT HEADQUARTERS

launched a special programme called "Operation Barga" for ensuring the rights of sharecroppers through recording the name of Bargadars. The work of 'Operation Barga' is in progress along with normal settlement work. With active help from the panchayats the State Governmet could upto March, 1985 distribute 8.03 lakh acres of vested land. About 16.14 lakh people received the land among whom about 56 per cent belonged to scheduled castes and scheduled tribes.

The production of coal in the state showed a little improvement from 19,203.0 thousand tonnes in 1984 to 19,360.0 tonnes in 1985. This improvement could have been more if power supply to the Eastern Coal Ltd. (which covers most of the coal mines in West Bengal) had been better.

Tourist Centres. Calcutta, until 1912, was the capital of the Government of India. Now, of course, it is the commercial capital of the north-eastern states of India. It is the centre of great industries like jute, tea, hides and skins, coal and lac. Places of interest are Victoria Memorial (Picture Gallery and Museum), Indian Museum, Zoological Gardens, the Jain Temple, the Kalighat Temple, Belvedere House (Originally the residence of British Viceroys when they visited Calcutta, now turned into the National Library), Raj Bhavan (Official residence of the State Governor), Marble Palace, Eden Gardens, Dalhousie Square (now renamed the Binoy-Badal-Dinesh Bagh), Dakhineywar Temple and Howarh Bridge.

Calcutta's Tube or Metro railway is the first of its kind in Asia.

Darjeeling is on the Great Himalayan slope and is one of the famous hill stations of India. It is 592 km north of Calcutta. Places of interest are Government House, Town Hall, Museum, Observatory Hill, Botanical Gardens, Birch Hill Park, Tiger Hill, Senchal Lake and Ghoom Monastery.

Santiniketan (District: Birbhum), located at a distance of 145 km from Calcutta, is the seat of the famous Viswa Bharati University founded by the late Rabindranath Tagore.

Digha, the most popular beach resort is in Midnapur district. It is 243 km from Calcutta and directly connected by road.

Sunderbans in 24 Parganas is the largest delta forest in the world. This area, criss-crossed with thousands of canals, has abundance of materials of interest for the tourist and wild life enthusiasts.

Governor: Prof. Saiyid Nurul Hasan. **Chief Minister:** Jyoti Basu (CPM).

UNION TERRITORIES

1981 Census

Territory	Population	Density (per sq km)	Sex Ratio**	Literacy (percentage)
Andaman & Nicobar Islands	188,741 (29)*	23 (28)*	760 (31)*	51.27 (8)*
Chandigarh	451,610 (27)	3961 (2)	769 (30)	64.68 (2)
Dadra & Nagar Haveli	103,676 (30)	211 (14)	974 (9)	26.60 26)
Delhi	6,220,406 (16)	4194 (1)	808 (29)	61.06 (3)
Daman & Diu (including Goa)	1,086,730 (22)	285 (12)	981 (5)	55.86 (5)
Lakshadweep	40,249 (31)	1258 (3)	975 (7)	54.72 (6)
Pondicherry	604,471 (25)	1229 (4)	985 (3)	54.23 (7)
All India	685,184,692	216	933	36.03

** Sex Ratio is the number of women per 1000 men. Only Kerala among states & union territories has 1034 women/1000 men. All others have below 1000 women/1000 men

* Brackets indicates ranking among States & Territories

‡ 29th is the last rank, because figures for Assam and J & K are not included.

ANDAMAN AND NICOBAR

Area: 8249 sq km; **Capital:** Port Blair; **Population:** 1,88,741; **Languages:** Bengali, Hindi, Nicobarese, Tamil & Malayalam. **Literacy:** 51.27%.

Andaman and Nicobar Islands are a group of more than 300 islands, the great majority of which (about 265) are uninhabited being too small and with little or no water. This group of islands in the Bay of Bengal may be considered the counterpart of the Lakshadweep Islands in the Arabian sea—both of them being the overseas possessions of the Indian Union.

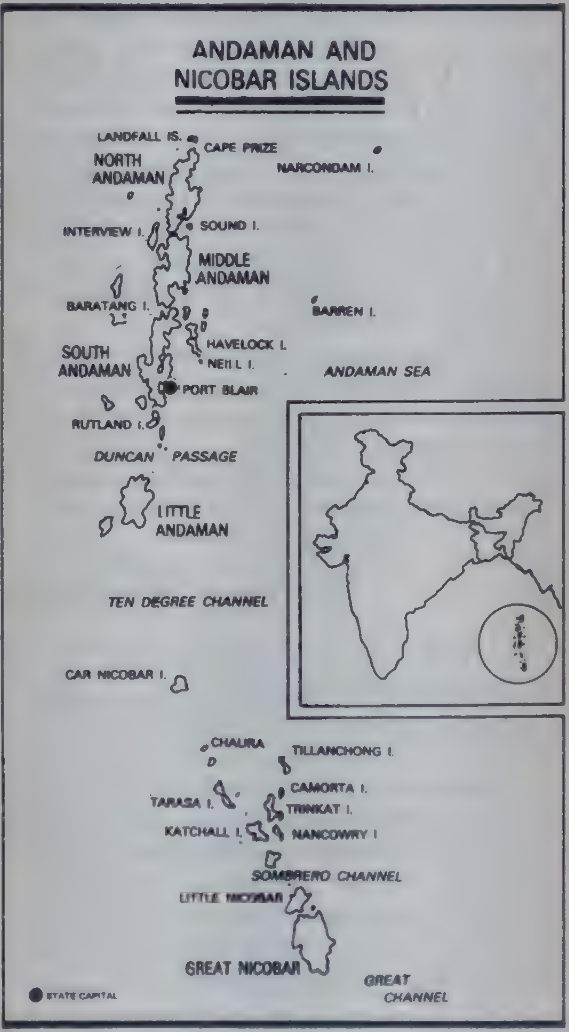
Physiography. Andaman and Nicobar Islands are continental islands lying between 6 and 14 degrees north latitute and 92 and 94 degrees east longitude. They form two broad groups—Andamans and Nicobars which are separated by the 10 degree channel which is about 145 km wide and 400 fathoms deep. Geologically the islands appear to have been part of the land mass of south east Asia comprising north east India, Burma, Thailand, Malaysia and Indonesia.

It is thought that Andamans and Nicobars are the remnants of two vast mountain ranges which, at one time, stretched from Arakan in Burma (Cape Negrias) to Sumatra (Achin Head) in Indonesia.

Port Blair, the headquarters of the Islands, is 1255 km from Calcutta (by sea), 1191 km from Madras and 580 km from Rangoon.

The Andaman Group has, at the extreme north, Land Fall Island which is about 900 km away from the mouth of the Hooghly river and about 190 km from Burma. This Island is followed by the three main islands, North Andaman, Middle Andaman and South Andaman—all of them separated from each other by shallow seas. This area is known as Great Andaman. Further south, at a distance of about 100 km from Port Blair, lies Little Andaman Island. Besides these, there is a large number of other islands in the group, many of them very small in size.

The Nicobar Group lying south of the Andamans extends from 6° to 10° north latitude. The northernmost island is Car Nicobar which lies about 120 km to the south of Little Andaman and the southernmost island is Great Nicobar barely about 150 km from Sumatra. Pygmalion Point also known as Parsons Point which has since been re-named as "Indira Point" is the southernmost tip of India and not "Kanyakumari" as is popularly known.


ANDAMAN AND NICOBAR ISLANDS
LANDFALL IS.
CAPE PRIZE
NORTH ANDAMAN
NARCONDAM I.
INTERVIEW I.
SOUND I.
MIDDLE ANDAMAN
BARATANG I.
BARREN I.
HAVELOCK I.
SOUTH ANDAMAN
NEILL I.
ANDAMAN SEA
PORT BLAIR
RUTLAND I.
DUNCAN PASSAGE
LITTLE ANDAMAN
TEN DEGREE CHANNEL
CAR NICOBAR I.
CHAURA
TILLANCHONG I.
CAMORTA I.
TARASA I.
TRINKAT I.
KATCHALL I.
NANCOWRY I
SOMBRERO CHANNEL
LITTLE NICOBAR
GREAT NICOBAR
GREAT CHANNEL
STATE CAPITAL

The important islands in this group are Great Nicobar, Car Nicobar, Chowra, Teressa, Nancowrie, Katchal and Little Nicobar.

The total area of the two groups of islands is 8249 sq km of which Andamans with 6340 sq km accounts for more than 76 per cent of the land area.

The total area of the Nicobar group of islands is 1953 sq km, the length and width being about 260 km and 58 km respectively. In this group, the Great Nicobar has the largest area of about 1045 sq km.

The climate of Andaman & Nicobar Islands is of the tropical type but the continuous breeze blowing in from the surrounding seas make it very pleasant.

History. The Andaman and Nicobar Islands, also known as the Bay Islands, had little historical importance till the advent of the

European powers into India and the East in the 16th century. The Portuguese who came first were not particularly interested in these islands but they were interested in the East Indies. The Dutch who came next drove the Portuguese from the East Indies and the Bay Islands naturally came into their domain. Meanwhile, the British who had established themselves in India came into conflict with the Dutch in and round the Andamans. It did not take long for the British to drive out the Dutch and occupy the islands.

The first settlement was established in North Andamans in the year 1789. Attempts at colonisation were ultimately given up but the penal settlement survived. Then came the Revolt of 1857 in India. The British found that they had on their hands a large number of rebel convicts whom the Indian prisons of those days would hardly contain. The Andamans offered a ready-made solution. It is estimated that between 1858 and 1860 some 2000-4000 sepoy mutineers were sent to the Andamans. Many of them died under agonising circumstances.

With the British occupation of the Islands contacts with the mainland of India grew. Many Indian traders, especially from the west coast of India, established themselves as traders in the islands. Christianity also spread.

The Cellular Jail. Meanwhile, a radical change occurred in the penal system in the Andamans. At first, the prisoners were confined to barracks for the night. This system was replaced by the Cellular Jail. Here, each prisoner was confined to a cell at night. The

The Tribals of Andaman

There are 6 primitive tribes in the Andaman and Nicobar Islands of which 4 belong to the Negrito stock viz. the Andamanese, the Onges, the Jarawas and the Sentinalese and 2 of the Mongoloid origin, viz., the Nicobarese and the Shompens. Of these, the Nicobarese and the Shompens live in the Nicobar District and the other 4 tribes are found in the Andaman District. The Nicobarese are a very thriving tribe and their population now is 22,000.

The Shompens are estimated to be more than 214. Of the primitive tribes, the Andamanese and the Onges are very friendly with civilization. Periodic contacts with the Jarawas are being made and the last such contact was made on the 30th October, 1985.

When the contact team led by the Lt. Governor, M.L. Kampani, visited them at Lakra Lungha in Foul Bay (Middle Andaman), a batch of 96 Jarawas including men, women and children were present to greet the Lt. Governor and the team. They are no longer hostile to civilization although they are not very much inclined to accept the modern way of life.

Contact with the Sentinalese is also being made and the last such contact was made on 5th November, 1985. Through gestures, they seem to show signs that they are no longer hostile, as they have been painted to be.

The Administration has settled the Great Andamanese in Strait Island, a small area (6 sq km) off the eastern coast of Middle Andaman. The Jarawas inhabit a reserved forest of about 648 sq km. on the western coast of South and Middle Andaman.

The Sentinalese are the sole inhabitants of North Sentinal Island with an area of about 47 sq km south west of Port Blair.

The Onges live in Little Andaman with an area of 751 sq km. Until recently it was the exclusive home of the Onges, but now it has been opened up for settlement by others.

The Jarawas and the Sentinalese live in active isolation and are not so friendly disposed towards outsiders. The problem the primitive tribes are facing is one of survival. While some of the primitive tribes have shown inclination to accept the modern way of life, others are yet to show them. However, there is a definite trend to indicate that they want to compromise with civilization for the sake of their own survival.

construction of the Cellular Jail was taken up in 1896. The construction itself was carried out by convicts. By 1897 four hundred cells were built. In 1906, all the 7 wings of the jail containing 663 cells were completed. The prisoners, who were deported to the Andamans, were all political prisoners of one sort or another.

The constitutional reforms of 1935 necessitated a thorough revision of policy. In Sept. 1937, the first batch of prisoners left the Andamans and by Jan. 1938 all prisoners were released.

The Second World War and the consequent Japanese occupation of these islands from 1942-1945 brought the islanders a taste of foreign military occupation. After the evacuation of the Japanese in 1945, the islands, as part of India, became free on August, 15, 1947.

One beneficial result of the the Japanese occupation was the expulsion of the Indian traders, who had ruthlessly exploited the ignorant islanders. They had either fled from the islands or were killed during Japanese occupation.

After independence, the Government of India was keen that mainland traders did not return to exploit the people and destroy their culture. The Andaman and Nicobar Islands (Protection of Aboriginal Tribes) Act was passed in 1956, under which entry into tribal areas was prohibited and no outsider could carry on trade or industry in the islands, without the licence of the Administrator. Since 1938, refugees and ex-servicemen were permitted and encouraged to settle down in the islands. Many of them have now become permanent settlers.

On November 1, 1956 the Andaman and Nicobar Islands were constituted into a Union Territory, administered by the President of India. The local administration is headed by a Lt. Governor from November 1982 onwards with his headquarters at Port Blair. In 1979 in response to a national demand, the former Prime Minister Morarji Desai dedicated the Cellutar Jail as a National Memorial.

Administration. The entire territory is delimited into 4 Sub Divisions and 7 tehsils as follows:—

Area, Sub Divisions, Tehsils

Sub Division	Tehsils in the Sub division	(in sq.km) Area
1. Mayabunder	1. Diglipur	884
	2. Mayabunder	1348
	3. Rangat	1098
2. South Andaman	1. Port Blair	
	2. Ferrargunj	3010
3. Car Nicobar	1. Car Nicobar	129
4. Nancowrie	1. Nancowrie	1824

State of Economy. The principal crops of Andaman and Nicobar Islands are rice, coconuts and arecanut. But the unscientific cultivation of these crops calls for radical improvements. Other crops are sugar-cane, pulses, fruit and vegetables. Recently it has been found that the climate is suitable for spices and rubber. Both are being tried out on the islands on a large scale.

Industries comprise saw milling, oil milling, plywood and matches. A number of training-cum-production centres have been started by the government.

Tourist Centres. Old Cellular Jail which has been declared a national monument, Anthropological Museum, Mount Harriet.

Lt. Governor: Lt. Gen. (Rtd) T.S. Oberoi.

CHANDIGARH

Chandigarh which has been a Union Territory since 1966 is to become part of the Punjab state according to the Punjab Agreement. It has been the capital city of both Punjab and Haryana where the High Court and University for both states are located. A planned modern city, it was designed by the French architect Le Corbusier.

In 1981 census Chandigarh showed a population of 4,51,610. Its area is 114 sq km.

DADRA AND NAGAR HAVELI

Area: 491 sq km; **Capital:** Silvassa; **Population:** 1,03,676; **Languages:** Bhili, Bhilodi, Gujarati and Hindi. **Literacy:** 26.6%.

Dadra and Nagar Haveli lie near the west coast surrounded by the states of Gujarat and Maharashtra. It consists of two pockets namely Dadra and Nagar Haveli and these two pockets are intercepted by the territory of Gujarat.

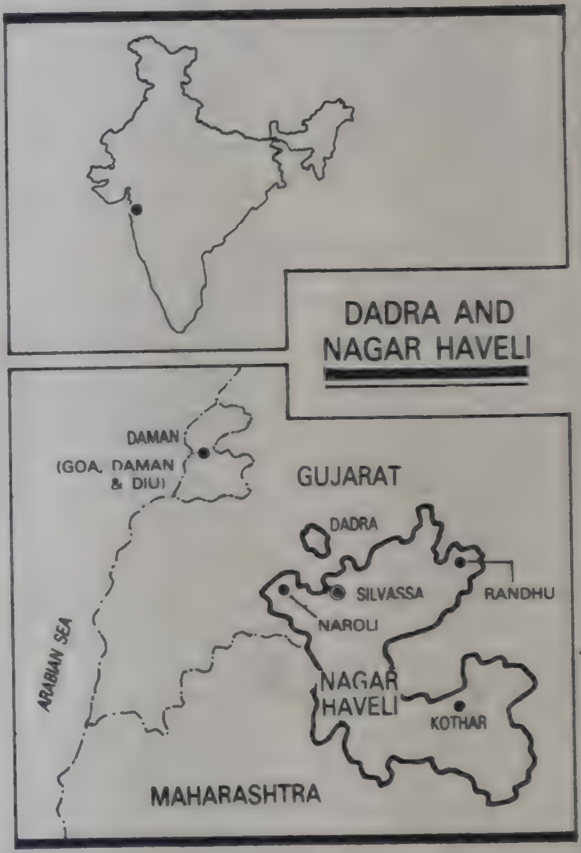
History. The territory of Dadra and Nagar Haveli was originally assigned to the Portuguese by the Maratha government in 1779 for an aggregated revenue of Rs.12,000/- in return for their friendship. The Portuguese ruled this territory till its liberation in 1954. After liberation, the administration was carried on by an Administrator chosen by the people themselves.

Probably this is the only part of the country which was ruled by the people themselves for about 8 years (1954 to 1961). On the 11th August, 1961, the territory was integrated into the Indian Union.

Administration. The territory is under the control of an Administrator. The first group Panchayats at the village level were established in 1968 and thereafter elections are being held regularly every four years.

State of Economy. Agriculture is the principal occupation of adivasis who represent 79 per cent of the total population as per 1981 census. Paddy, ragi, pulses and fruits are the major crops while wheat, vegetables and sugarcane are also cultivated. About 22,800 hectares of land is under cultivation. The Department of Agriculture has taken up several schemes to explore the production potential of this area. Area under high yielding varieties during 1986-87 is about 6570 hectares. A number of new commercial crop varieties are introduced. 96 per cent of the area is under dry land farming. Hence, dry farming technology is used to get top yield by tapping rain water.

There are no major industries. Two industrial estates, one at Silvassa on cooperative basis and the other government - owned Industrial Estate at Masat, have been established. A new industrial estate at Khadoli is coming up. No. of industrial units with permanent registration increased to 286 during 1986-87. There were 96 medium scale units and 37 cottage and village scale units during 1986-87. Altogether there are 236 units which produce goods to the value of Rs.55 crores.



The products manufactured include spectacle frames and flooring tiles, buckets, bread & biscuits, furniture, katha and tenin, spun pipes, plastic moulded articles, chemicals, detergent powder, art silk fabrics, electrical fixtures, watches, candles, tin containers, chappals, rexine cloth, foam, etc.

Administrator: Dr. Gopal Singh.

DELHI

Area: 1,483 sq km.; **Capital:** Delhi; **Population:** 62,20,406; **Languages:** Hindi, Punjabi and Urdu; **Literacy:** 61.54%.

The territory of Delhi shines with the reflected glory of a metropolis that functions as the capital of India. But beyond the confines of the metropolis and shorn of its imperial associations, this territory is better and greener.

Physiography. The territory forms an enclave inside the eastern frontier of Haryana in North India. The climate of the territory is influenced by its inland position with the desert of Rajasthan to the west and south-west and Gangetic plains of U.P. to the east. Extreme dryness with an intensely hot summer and cold winter are the characteristics of the climate. The year can broadly be divided into four seasons. The cold season starts in late November and extends to about the beginning of March. This is followed by the hot season which lasts till about the end of June when the monsoon arrives. The monsoon continues into the last week of September. The two post-monsoon months October and November constitute a transition period from monsoon to winter conditions.

History. The city of Delhi was founded in the 11th century A.D. by a Rajput Chieftain of the Tomara clan. The Chauhans obtained possession of the the city from the Tomaras. Prithvi Raj, the Chauhan ruler of Ajmer and Delhi, made the city of Delhi famous by his heroic valour and romantic adventures. Delhi under Prithvi Raj and Kanauj under Jai Chand were the principal kingdoms of north India at that time.

The first invasion of India by Muhammud Ghori was beaten back by Prithvi Raj in the first battle of Tarain in 1191. Next year, Ghori came back to avenge his defeat and in the second battle of Tarain (1192) the Rajput army was routed. Prithvi Raj was captured and put to death. Delhi thus passed into the hands of Muslim rulers for the next six centuries. Under the Mughal Emperors, Delhi became a world famous city.

In 1857, following the mutiny of Indian troops, the British deposed the titular Emperor Bahadur Shah and formally annexed Delhi. In 1912, the capital of British India was transferred from Calcutta to Delhi. A new city—New Delhi—of imposing dimensions was laid out by the side of the old city—Old Delhi— by the British Indian Government. Independent India has retained this historic capital.

Administration. Delhi became a Union Territory on November 1, 1956. In order to enable the representatives of the people of the Union Territory a larger measure of association with developmental activities, parliament enacted the Delhi Administration Act 1966. Under this Act, Delhi has a Metropolitan Council consisting of 61 members, five of whom are nominated by the President of India.

The Lt. Governor is the Administrator. He is assisted by 4 Executive Councillors (One Chief Executive Councillor and three Executive Councillors) appointed by the President of India on the recommendation of the Union Home Ministry.

The Territory is made up of three census towns, Delhi, New Delhi and Delhi Cantt, and 214 villages. It is represented by 7 members in the Lok Sabha and 3 members in the Rajya Sabha. The territory is covered by 3 local bodies— Delhi Municipal Corporation, New Delhi Municipal Committee and Cantonment Board. The rural area of the territory falls within the jurisdiction of the Municipal Corporation of Delhi.

Delhi Units

Name	Urban/ Rural	Population 1981
New Delhi Municipal Committee	(Urban)	273036
Delhi Cantonment Board	(Urban)	85166
Municipal Corporation of Delhi	(Urban)	5409998
	(Rural)	452206

It is estimated that the population of Delhi by the middle of 1987 is around 80 lakhs.

State of Economy. In Delhi 31.93 per cent of the total population constitutes workers (1981 census). Percentage distribution of workers according to main activity revealed that cultivators constitute 1.93 per cent, agricultural labourers 0.86%, household industry 3.76% and other workers 93.45%.

Delhi ranks third in *literacy* after Kerala and Chandigarh which hold the first and second positions. Percentage of literacy in 1981 was 61.54 (68.40% males and 53.07% females).

Delhi has a total land area of 1,47,488 ha. of which 1443 ha. area is forest and 70642 ha. is not available for cultivation. Other uncultivated land excluding fallow, comes to 4626 ha.

About 91757 ha. is cultivated. Chief crops in 1984-85 (in 1000 tonnes), were: wheat 117, jowar and bajra 12, sugar cane (gur) 0.04.

Since 1974 a large number of industrial concerns have been established. These include factories for the manufacture of razor blades, sports goods, parts for radios, bicycles station wagons and plastic and PVC goods including footwear. The number of industrial units functioning was about 65000 in 1985-86. The number of workers employed was 5,95,000, production was worth Rs.3450 crore and investment was about Rs.1260 crore.

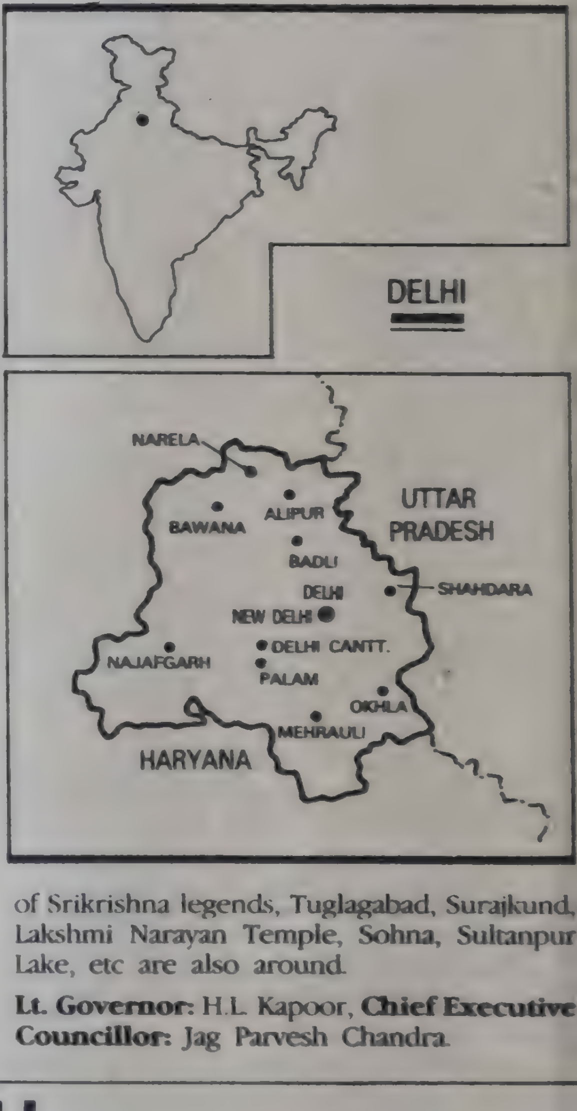
Some traditional handicrafts for which Delhi was formerly famous, still flourish. Among them are ivory carving, miniature painting, gold and silver jewellery, etc. The handwoven textiles of Delhi are particularly fine, this craft having been successfully revived.

Tourist Centres. Since Delhi has been the capital of India for centuries, it is full of rich monuments. Both the Delhis -the old city of the Mughals formed by Shah Jehan and the new city constructed by the British in 1931 -preserve centres of Tourist interest.

Among them are Rashtrapati Bhavan, Mughal Gardens, Parliament Buildings, Chandni Chauk, Red Fort, Juma Masjid, Raibat, Raj Ghat, Shantivana, Vijaya Ghat, Purana Kila (Indraprastham), Humayun's Tomb, Lodi Tomb, Qutb Minar, Haus Khas, Safdarjung's Tombs, Jantar Mantar and India Gate.

The Zoological Garden, Kashmiri Gate, Birla Mandir, Vigyan Bhavan, National Museum, Cannaught Circus, Budha Jayanti park, Rabindra Rangsala and Nehru Memorial Museum are also of imprortance.

Besides, Agra, the city of Taj Mahal, Mathura of Srikrishna legends, Tuglagabad, Surajkund, Lakshmi Narayan Temple, Sohna, Sultanpur Lake, etc are also around.



Lt. Governor: H.L. Kapoor, **Chief Executive Councillor:** Jag Parvesh Chandra.

DAMAN AND DIU

Area: 112 sq km; **Capital:** Daman; **Population:** 78981; **Languages:** Marathi and Gujarati; **Literacy:** 55.86%.

Daman and Diu were separated from Goa to become an independent union territory when Goa was accorded full statehood in 1987. These three different landblocks on the west coast of India came to form one political unit after liberation from the erstwhile Portuguese regime in 1961.

Physiography: Daman lies on the Gujrat coast while Diu is an islet on the southern fringe of Kathiawar peninsula.

Daman is bounded on the north and south by the Bhagwan and the Kalem rivers respectively, on the east by the Gujarat State and on the west by the Arabian Sea.

Diu, lies in the Gulf of Cambay near Veraval Port and is separated from the southern extremity of the Saurastra Peninsula by a narrow channel running through a swamp. The island is connected with the mainland by a narrow channel on the north. Daman has a mild and humid climate while Diu has a sultry climate.

History. Diu was occupied by the Portuguese in 1534. In 1559, Daman also was annexed by them. The inquisition which was establiehed in Goa, largely contributed to the downfall of the Portuguese empire in the East.

Under the Constitution (Twelfth Amendment) Act 1962, Goa was included in the first schedule to the constitution as a territory of the Indian Union. By the 57th amendment of the constitution Daman and Diu were separated from Goa to become an independent union territory.

Daman and Diu have no subdivisions. The Daman region was under the charge of a Collector while Diu is under the charge of a Civil Administrator, they were part of the former Union Territories of Goa, Daman an Diu.

Districts

District	Area (sq kms)	Population (1981) Census	Headquarters
Daman	72.0	48,560	Daman
Diu	40.0	30,421	Diu

DAMAN AND DIU

Lt. Governor: Dr. Gopal Singh.

LAKSHADWEEP

Area: 32 sq km; **Capital:** Kavaratti; **Population:** 40,249; **Language:** Malayalam; **Literacy:** 55.07%.

The tiniest Union Territory of India, Lakshadweep is an archipelago consisting of 12 atolls, three reefs and five submerged banks. Of its 36 islands covering an area of 32 sq km, only 10 are inhabited. They are Andrott, Amini, Agatti, Bitra, Chetlat, Kadmat, Kalpeni, Kavaratti (Headquarters), Kiltan and Minicoy. Bitra is the smallest of all having only a population of 181 persons (1981).

Physiography. Lakshadweep lies about 220 to 440 km from the coastal city of Cochin in Kerala between 8° and 12° 13′ north latitude and 71° and 74° east longitude. Kavaratti is its headquarters. These islands and Cochin are linked by ship, which takes about 10 to 20 hours.

Though the land area is extremely small, if we consider its lagoon area of about 4,200 sq km 20,000 sq km of territorial waters and about seven lakh sq km of economic zone, Lakshadweep is one of the largest territories of our nation.

The flora of the islands includes Banana, Colocasia, Drumstick, Bread-fruit, Jack fruit and Wild Almond. Coconut is the only crop of economic importance in Lakshadweep. These are found in different varieties such as Laccadive micro, Laccadive ordinary, green dwarf, etc. Two different varieties of sea grass are seen adjacent to the beaches. They are known as Thalassia hemprichin and Cymodocea isoetifolia. They prevent sea erosion and movement of the beach sediments.

The marine life is quite elaborate. The commonly seen vertebrates are cattle and poultry. Oceanic birds generally found are 'tharathasi' (Sterna fuscata) and 'karifetu' (Anous stolidus). They are generally found in one of the uninhabited islands known as 'Pitti'. This island has been declared a bird sanctuary.

History. Early history of Lakshadweep is not recorded. Local traditions attribute the first settlement on these islands to the period of Cheraman Perumal, the last King of Kerala. It is believed that after his conversion to Islam, at the behest of some Arab merchants, he slipped out of his capital Cranganore, the present day Kodungalloor and an old harbour town near Cochin, for Mecca.

When his disappearance was discovered, search parties from different places left for the shores of Mecca in sailing boats in search of the King. It is believed that one of these sailing boats of the Raja of Cannanore was struck by a fierce storm and they were shipwrecked. After being tossed for many days in the Arabian Sea, they finally landed on the island now known as Bangaram. From there, they went to the nearby island of Agatti. Finally the weather improved and they returned to the mainland sighting other islands on their way. It is said that after their return, another party of sailors and soldiers were sent and they discovered the Island of Amini and started living there. It is believed that the people sent there were Hindus. Even now unmistakable Hindu social stratification exist in these islands despite Islam.

There are communities who are primarily land owners (Koyas), sailors (Malmis) and cultivators (Melacheris). Legends say that small settlements started in the Islands of Amini, Kavaratti, Andrott and Kalpeni first and later people from these islands moved to other Islands of Agatti, Kiltan, Chetlat and Kadmat. This legend of Cheraman Perumal is not, however, fully substantiated.

The advent of Islam dates back to the 7th century around the year 41 Hijra. Saint Ubaidulla is believed to have preached Islam to the islanders. The grave of Saint Ubaidulla in Andrott is today a sacred place. Preachers from Andrott are respected deeply in far off lands like Sri Lanka, Malaysia, Burma etc.

The arrival of the Portuguese in India again made Laccadives an important place for the seafarers. The finely spun coir was much sought after for ships. So the Portuguese started looting Island vessels. They forcibly landed at Amini coir some time in the early 16th century to procure but it is said that the people killed all the invaders by poisoning them. The Portuguese invasion ended thus.

Even after the conversion of the entire Islands to Islam, the sovereignty remained in the hands of the Hindu Rajah of Chirakkal for some more years. From the hands of the Chirakkal Raja, the administration of the islands was passed on to the Muslim house of Arakkal of Cannanore around the middle of the 16th century.

The Arakkal rule was oppressive and unbearable. Some time in the year 1783 some islanders from Amini took courage and went to Tippu Sultan at Mangalore and requested him to take over the administration of the Amini groups of islands. Tippu Sultan at that time was on friendly terms with the Bibi of Arakkal and after deliberations, the islands of Amini group were handed over to him. Thus the islands' suzerainty came to be divided five came under the sovereignty of Tippu and the rest continued under the Arakkal rule.

After the death of Tippu in the battle of Seringapattom the islands were handed over to the British East India Company and they were administered from Mangalore. In 1847, a severe cyclone hit the Island of Andrott and the Raja of Chirakkal decided to visit the island in order to assess the damage and for distributing relief.

An officer of the East India Company Sir W. M. Robinson volunteered to accompany him. On reaching Andrott, the Rajah found it difficult to meet all the demands of the people. Sir William then offered the Raja to help him in the form of a loan. This was accepted. This arrangement continued for about four years but when the debt mounted, the English asked the Rajah to repay which he could not. In 1854 all the remaining islands were handed over to the East India Company for administration. So, came the British rule.

The Union Territory was formed in 1956 and it was named Lakshadweep in 1973.

Administration. Prior to the formation of this Union Territory on 1 Nov. 56, these islands formed part of the erstwhile Madras State. The entire group of islands is considered as one district and divided into four tahsils and each put in charge of a Tahsildar, except Minicoy where the post of the Tahsildar was abolished and a Deputy Collector appointed in August, 1978. The lowest revenue official there was known as 'Amin' in the Laccadive group and Minicoy and 'Karani' in the Amindivi group. Now they are designated 'Amin' in all Islands.

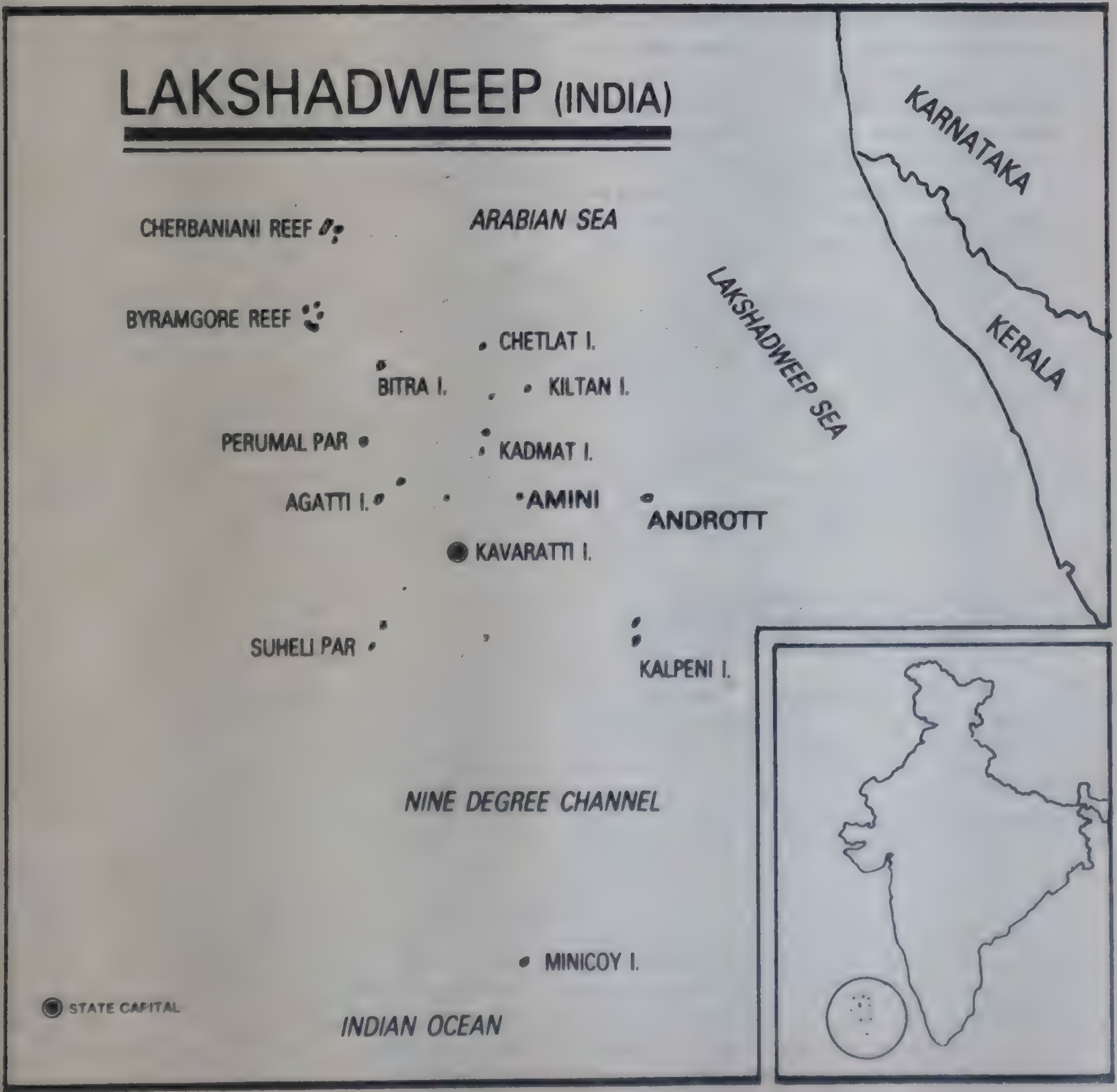
The Headquarters of the Administration was shifted from Calicut (Kerala State) to Kavaratti Island in March 1964. When the annual expenditure to be incurred by the Administration went beyond Rs. 3 crore, the necessity for decentralisation of the departments was felt and accordingly new offices were created in 1972.

Area and Population

Islands (inhabited)	Area (sq km)	Population (1981 census)
Minicoy	4.4	6,658
Kalpeni	2.3	3,543
Andrott	4.8	6,812
Agatti	2.7	4,111
Kavaratti	3.6	6,604
Ameni	2.6	5,367
Kadmat	3.1	3,114
Kiltan	1.6	2,375
Chetlath	1.0	1,484
Bitra	0.1	181

State of Economy. Agriculture is the mainstay of Lakshadweep's economy. The staple products of the territory are coconuts and coir. Coconut is the main crop occupying the entire cultivable area of 2780 ha. The total palm population is 0.72 million with 0.16 million bearing trees. The average production is 8078 nuts per ha. per year with an average yield of 58 nuts per palm which is definitely higher than the average production figures of major coconut producing countries.

Fruit plants like banana, papaya, guava, sapota and citrus varieties and drumstick plants are cultivated in the coconut gardens as


LAKSHADWEEP (INDIA)
CHERBANIANI REEF
ARABIAN SEA
BYRAMGORE REEF
CHETLAT I.
BITRA I.
KILTAN I.
LAKSHADWEEP SEA
KARNATAKA
KERALA
PERUMAL PAR
KADMAT I.
AGATTI I.
AMINI
ANDROTT
KAVARATTI I.
SUHELI PAR
KALPENI I.
NINE DEGREE CHANNEL
MINICOY I.
STATE CAPITAL
INDIAN OCEAN

inter-crops. Agricultural Demonstration Farms of the Administration in all islands supply vegetables to the people.

Multi-crop demonstration plots extending to a gross area of 260 ha. engaging 640 labourers are available in the islands.

The islands produce copra, coir, jaggery, vinegar and fish. Trade in coir is a monopoly of the administration and is being carried on as a welfare measure on a no-profit-no-loss basis, by bartering rice for coir. The average copra produced is about 2500 tonnes per annum, of which 2000 tonnes is sold through Calicut and Mangalore markets.

The islands have immense potential for the development of fisheries. Two boat building yards are engaged in the construction of mechanised boats. Over 331 mechanised boats are under operation in Lakshadweep waters, of which 313 were issued to the fishermen under hire-purchase system at subsidised cost. Fish catch during 1986-87 is estimated at 7488 tonnes. The canning factory at Minicoy processes Tuna fish.

The main household industry is coir making. Six coir production-cum-demonstration centres are functioning one each at Kadmat, Kiltan, Chetlat, Ameni, Agatti and Andrott.

These centres produced 41 tonnes of improved variety thinner coir yarn during 1986-87. The mechanised decorticating units at Andrott, Kadmat, Ameni and Kavaratti extracted 153 tonnes brown fibre from dry coconut husk during 1986-87. The hoisery factory at Kalpeni produced 13614 vests during this period. The Handicraft Training Centres at Kavaratti and Kalpeni are continuing to impart training to local candidates in making coral flowers, sea-shell toys, coconut shell crafts, coir crafts etc. One Furniture-Makers' Industrial Co-operative Society and one Handicraft Industrial Co-operative Society are also functioning at Kavaratti. Two Coir Co-operative societies have been started at Ameni and Kalpeni with trained local women as members.

Tourist Centres. The Development of domestic as well as international tourism has immense potential. However, much could not be achieved till recently owing to the strict entry restriction imposed on visitors from the mainland. Ministry of Home Affairs has now made some relaxation and as a result of this, international as well as domestic tourism has received a remarkable boost.

Already numerous infrastructural facilities have been created. Construction of an air-strip at Agatti, near Bangaram is receiving active consideration at the Centre. Since the literacy rate in the Union Territory is one of the highest in the country, the level of educated unemployed can be kept under control by developing this sector. Society for Promotion of Recreational Tourism (SPORTS) is a society registered under the Societies Act, 1860.

Administrator. Jagdish Sagar.

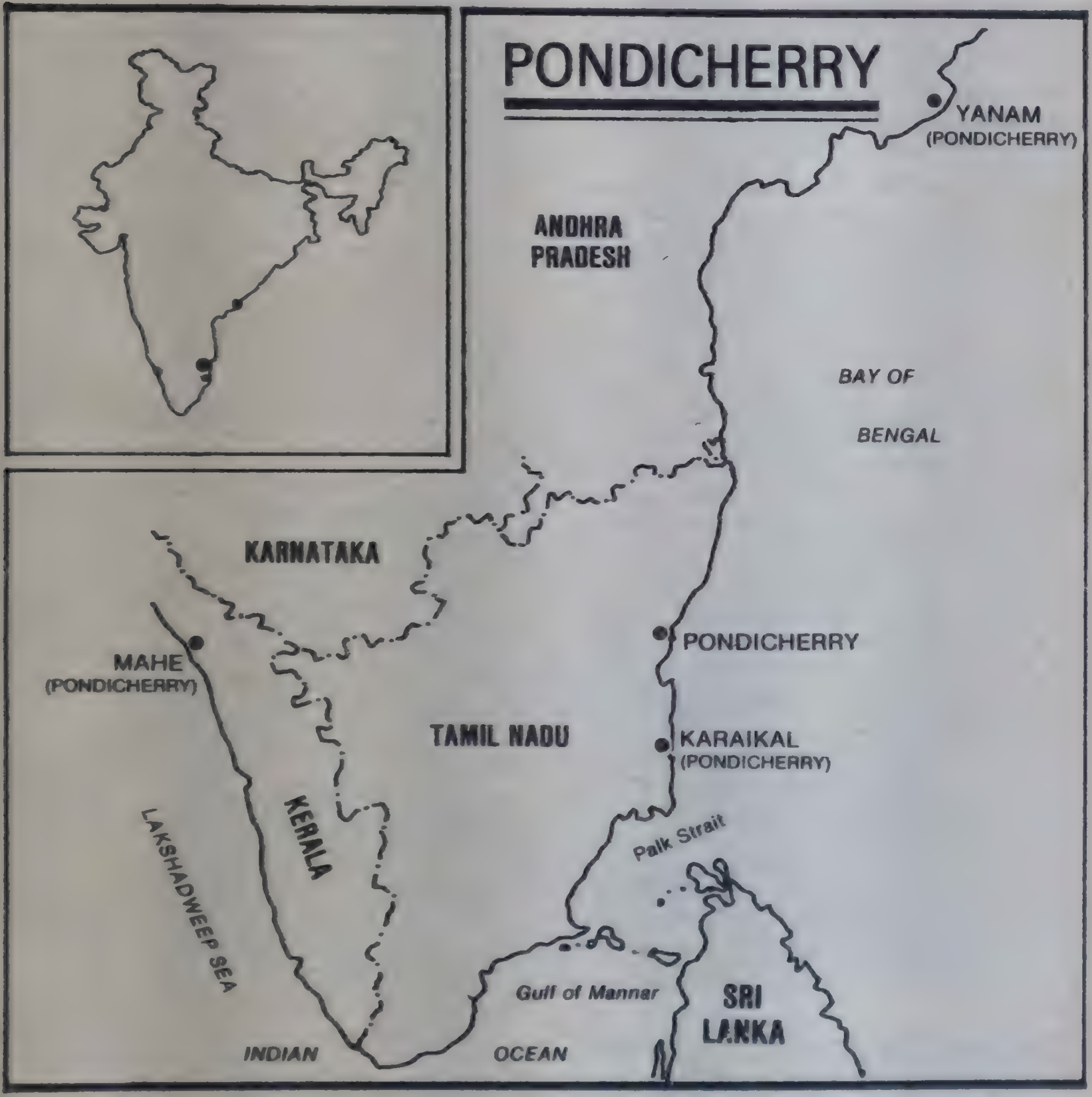
PONDICHERRY

Area: 492 sq km; **Capital:** Pondicherry; **Population:** 6,04,471; **Languages:** Tamil, Telugu, Malayalam, English and French; **Literacy:** 55.85%.

Physiograpghy. The Union Territory of Pondicherry encompasses an area of only 492 sq km with Pondicherry town and its villages covering 293 sq.km surrounded by the South Arcot District, Karaikal town and its villages covering 160 sq km surrounded by Thanjavur District, Mahe and its villages covering 9 sq km surrounded by the Kerala State, and Yanam covering 30 sq km within the East Godavari District in Andhra Pradesh. While Pondicherry, the headquarters of the Union Territory, lies 162 km south of Madras and 22 km north of Cuddalore, Karaikal is about 150 km south of Pondicherry and Yanam about 840 km north-east of Pondicherry on the Andhra coast. Mahe lies almost parallel to Pondicherry, 653 km away on the west coast.

The French first established their foothold in Pondicherry in 1674; Karaikal was obtained from the King of Tanjore in 1738. Mahe was made over to the French by the ruler of Badagara in 1721. Yanam came into their possession in 1731.

Pondicherry and its surrounding enclaves lie on the drainage basin of the Gingee river. Karaikal located in the fertile Cauvery delta is


PONDICHERRY
YANAM
(PONDICHERRY)
ANDHRA
PRADESH
BAY OF
BENGAL
KARNATAKA
MAHE
(PONDICHERRY)
PONDICHERRY
TAMIL NADU
KARAIKAL
(PONDICHERRY)
KERALA
LAKSHADWEEP SEA
Palk Strait
Gulf of Mannar
SRI
LANKA
INDIAN
OCEAN

fed by the waters of Arasalar (running a distance of 11.97 km in the reigon), Natter (11.2 km), Vanjiar (9 km), Nular (13.77 km), Puravadaiyaran (5.3 km) Thirumalirayanar (5.13 km) and the Nandalar (15.15 km).

River Mahe forms the northen boundary of Mahe town separating it from the enclaves of Kallayi and Naluthara on the north. The Coringar river, which is a branch of Gautamin Godavari river flows through the town of Yanam.

History. Pondicherry entered modern history when the French East India Company established a settlement there in 1673. The French converted this obscure little village into a flourishing trading centre. The French were the last European power to come to India for trade. The Dutch and the English had already established themselves at various centres in India. The Portuguese who came first were by this time a spent force. It was quite natural that rivalries should arise amoung the later powers for dominance in India. Actually what brought them into conflict in India was rivalry at home, that is, in Europe. The Dutch were the first to cross swords with the French.

They captured Pondicherry in 1693 but returned it to France under the Treaty of Ryswick in 1699. Pondicherry regained its prosperity in a few years. In 1706 Pondicherry had a population of 40,000 while the English town of Calcutta had barely 22,000.

In the meantime, the French East India Company had run into financial difficulties and the Company was forced to abandon their trading posts in Bantam, Surat and Masulipatnam. In 1720 the Company was reconstituted as the "Perpetual Company of the Indies" and new French establishments sprang up in the East. Mauritius was occupied in 1721, Mahe on the Malabar Coast soon after, Yanam in 1731 and Karaikal in 1738. With the appointment of Dupleix as Governor of Pondicherry in 1742 France became involved in Indian politics. Dupleix harboured ambitions of establishing a French Empire in India.

When the Austrian Succession War (1742–48) broke out in Europe, England and France took opposite sides. Anglo-French hostility spread to India. The English captured some French ships. Dupleix reacted sharply. He captured Madras in 1748. The Austrian War of Succession was ended by the Treaty of Aix-La-Chappelle and Madras was returned to the English. Fresh hostilities, however, broke out between the English and the French in India. Pondicherry changed hands according to the fortunes of the Anglo-French wars. The English captured Pondicherry in 1761, returned it in 1765, retook it in 1778, captured it a third time in 1793 and finally restored it to France in 1814.

When at last British paramountcy was established in India, Pondicherry ceased to be of any political importance and the British let the French continue in their possessions in India. The French Government handed over the Administration of their territories in India to the independent Government of India in November, 1954. The territories thus handed over were constituted into the Union Territory of Pondicherry.

Administration. Pondicherry is administered by the President of India through a Lt. Governor who is advised by a Council of Ministers which is responsible to the legislative assembly, consisting of 33 members. Normally the Counil of Ministers under a Chief Minister carries on the Administration directly.

Districts

District	Area (sq km)	Population	Headquarters
1. Karaikal	160	1,20,010	Karaikal
2. Mahe	9	28,413	Mahe
3. Pondicherry	293	4,44,417	Pondicherry
4. Yanam	30	11,631	Yanam

State of Economy. Nearly 45% of the population in the Territory are engaged in agriculture and allied pursuits. In all 90% of the cultivated area is irrigated. Area and production of main crops during 1986-87: Rice: 27200 ha (89713 M.T.), Millets: 1229 ha (4100 M.T.), Pulses: 9100 ha (7,187 M.T.), Sugarcane: 3,009 ha (3,30,000 M.T.), Oilseeds: 6770 ha (14,290), Cotton: 1619 (7700 bales).

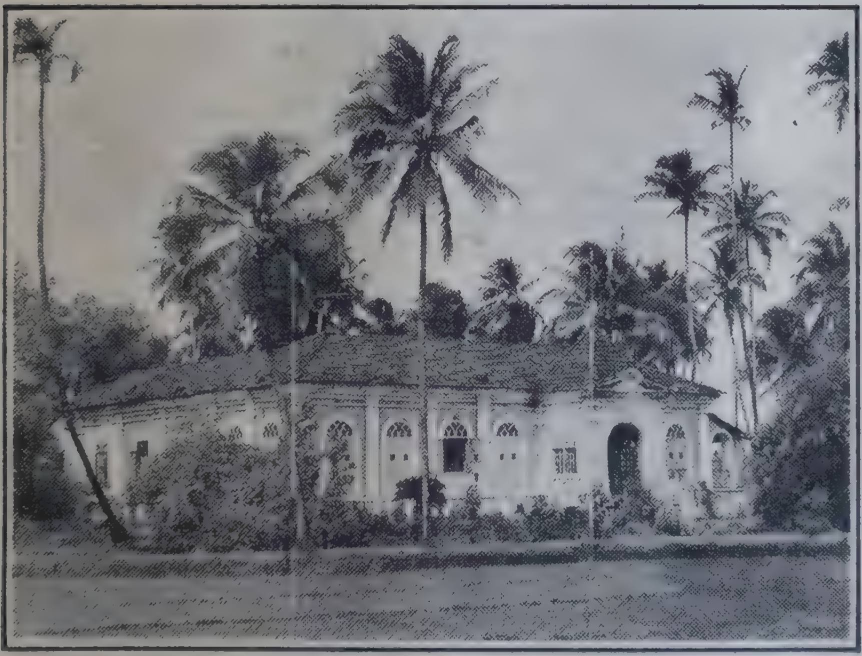
There are 12 large scale industries, (6 Textile Mills, two Sugar Mills, one Paper Mill, one Caustic Soda Unit and one Ceramic Unit) and 24 Medium Scale Industries which provide employment to 18,000 persons.

This apart, there are 2619 registered Small Scale Industries generating employment opportunities to 17,500 persons.

Tourist Centres. Pondicherry is a living monument of French culture in India.

Among the places of interest are Government palace, Beach, Auroville, Sri Aurobindo Ashram, Baharatiyar Samadhi, French Institute, Jawaharlal Institute of Post-Graduate Medical Education and Research, Indian Institute of Indology, Romain Rolland Library, Botanical Garden, Alliance Francoise, Ousteri Lake, Joan of Arc Square, Temples and Churches.

Lt. Governor: Tribhuvan Prasad Tewary; **Chief Minister:** M. O. H. Farook (Congress).



SPECIAL FEATURE

GOA: THE YOUNGEST STATE

Till August 12, 1987, Goa was part of the Union Territory of Goa, Daman and Diu. Goa became the twentyfifth state in the Indian Union by an act of Parliament on August 12, 1987 while Daman and Diu formed a Union Territory, administered by the Governor of Goa who simultaneously holds office as the Lt. Governor of Daman and Diu also. Since their liberation on December 19, 1961 from the Portuguese colonial rule, the three land blocks on the west coast of India, were under one administration.

Physiography: Situated between Karnataka and Maharashtra, Goa is bounded on the north by the Terekhol river, surrounded on the south and east by Karnataka while on the west is the Arabian Sea.

On its eastern sector Goa's terrain is hilly, forming the northern edge of the Sahyadri Mountain ranges. The major west-flowing rivers that crease the territory are; Mandovi, Zuari, Terekhol, Chapora and Betul. The total navigable length of these rivers, which form the waterways by which Goa's main export commodity iron and manganese ore is transported to the Mormugao harbour, is 253 km. The Mormugao harbour is virtually the confluence of the Mandovi and Zuari rivers.

Goa's climate is warm and humid, with little variation in temperature. The annual rainfall is between 2800 mm and 3500 mm. History: Known for its admirable synthesis of culture, Goa's history can be traced back to the Mauryan empire in India in the third century B.C. In the second century B.C. the Konkan region was dominated by Krishna Satakaini of the Satavahana dynasty. In the days of yore, Goa was known as Gopakapattan, or Gomant,—names which figure in the Bhishma-Parva of Mahabharatha. Another puranic name was Govapuri. The second century traveller, Ptolemy, is believed to have referred to this territory as "gouba."

Goa came under the sway of the Bhojas and Mauryas from the fourth to the sixth century A.D. During the sixth century, Chalukyas of Badami drove out the Mauryas, from south Konkan (578 A.D.), while Rastrakutas of Malkhed ousted the Chalukyas of Badami in 753 A.D. They ruled over Deccan till 973 A.D., but in a short while the power structure changed with the entry of Kadambas who ruled over Konkan from 1020 A.D. It was during the Kadamba rule that commercially and culturally, Goa scaled new heights. Chandrapur (now Chandor), and Gopakapattan or Govapuri (now known as Goa Velha) were two major port towns then.

Towards the beginning of the fourteenth century, some parts of Goa were overrun by Malik Kafur's forces, marking the beginning of a mohammadan domination which was, however, short-lived following the emergence of the Vijayanagar power. For a century Goa was part of the Vijayanagar empire. The Saptakoteswar Temple at Naroa—Divar, which the Mohammadans had demolished, was rebuilt around this time.

Goa: At a Glance

Area: *3702 sq km;* **Capital:** *Panaji (pronounced Ponji in Konkani and formerly known as Panjim in English);* **Population:** *10,07,749;* **Languages:** *Konkani and Marathi;* **Literacy:** *57 per cent*

For two decades from 1471, Goa came under the Bahamani rulers but once again Goa passed into the hands of the Muslim rulers when in 1489 Adilshah of Bijapur annexed it and it was from him that the Portuguese adventurer Afonso de Albuquerque wrested the Territory on November 25, 1510. Kneeling in public square, Afonso de Albuquerque dedicated Goa to St. Catherine, whose feast was on that day.

The Portuguese had already annexed Diu in 1535. Bardez on the north of River Mandovi and Salcete on the south of River Zuari came under Portuguese sway in 1543. These places along with Ilhas (known now as Panaji) are known as "old Conquests" area. By the close of the eighteenth century the region now identified as Goa was under Portuguese administration, including the "new conquest" (Novas Conquistas) area such as Ponda, Sanguem and Quepem—all in 1763, Canacona (1764), Bicholim and Satari (1781) and Pernem (1788).

However, it was not all that smooth for the foreigners for, there were resistance from within and attacks from across the borders. In keeping with the sixteenth century axiom that the religion of the king had to be the religion of his subjects, Portugal began sending missionaries to Goa to spread Christianity. In 1557, Goa was elevated to an Archepiscopal See repeat See and her "Primate of the East" held jurisdiction from the African coast to China. From 1560 to 1774, the Tribunal of Inquisition ensured that the faith did not waver.

It was during this period that a Spanish Jesuit priest, Francis Xavier arrived in Goa (1542). He was a great missionary with a compassion for the poor. Considered a holy man, he breathed his last in 1552 and his incorruptible body has been preserved in a glass casket in the "Basilica of Bom Jesu" at Old Goa, a few km east of Panaji. The first printing press using moveable types was set up in Goa this time and the first book to be printed in this press was "Doutrina Christa", written by Francis Xavier. Other publications from the same press were: Krista Purana in Marathi, Doutrina Christa in Konkani (all by the first English Jesuit, Thomas Stephens) and a treatise on medicinal herbs, titled "Colloquios Dos Simples e Drogas Aedicinais" by Garcia de Orta.

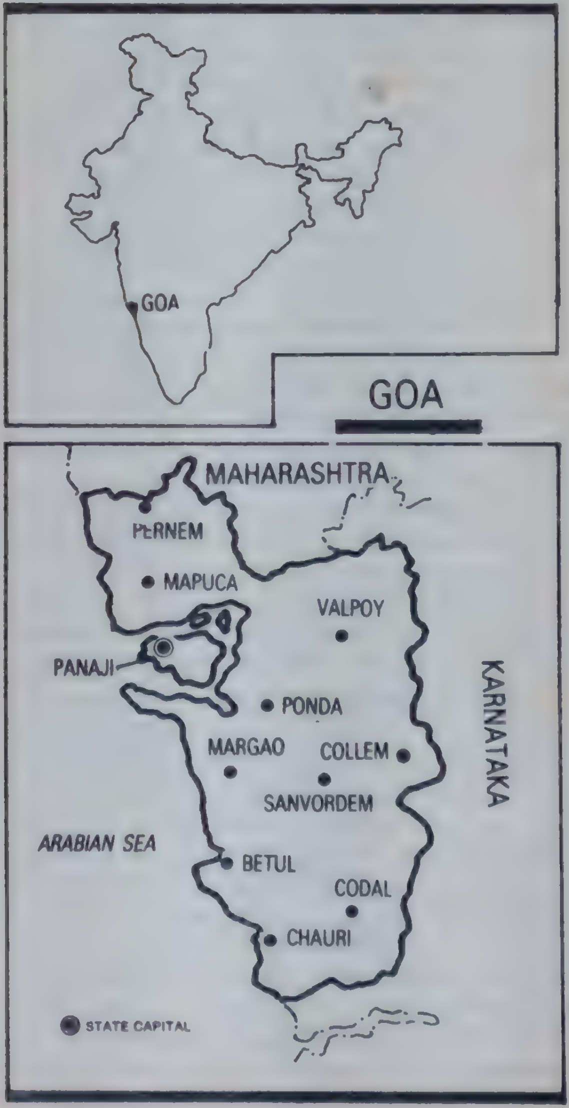
Between 1667 and 1683 the Maratha warrior Shivaji and his son, Sambaji made occasional forays into Goa to free it from the Portuguese. This, coupled with the Dutch challenge, made the Portuguese control over the territory rather weak and that prompted internal revolts of which the "pinto conspiracy" (1787) and the "revolt of the Ranes" (1823) were more conspicuous. While the "pinto conspiracy" was the product of the neglect of the local clergy, who were denied their rightful place in the ecclesisatical heirarchy. At the same time, well qualified Goans were kept out of Government service too. The two sections combined under the leadership of Fr. Caetano Francisco Couto of Panaji and Jose Antonio Gonsalves of Divar. Word of that leaked out, several people were arrested but the leaders of the plot managed to escape to Bombay. From 1755 to 1822, the Ranaes of Satari revolted 14 times and every time the Portuguese might prevailed. The result was no different in 1823 and 1824. But, this had a sobering effect on the Portuguese who decided on certain reforms one of which was to accept three representatives from Goa to the Portuguese Parliament. But the Portuguese rulers in Goa opposed this move. Bernardo Peres da Silva, who managed to reach the Portuguese capital of Lisbon, was later (in 1835) sent back to Goa as the perfect but he was deposed within 18 days by the Portuguese authorities in the Territory. In between, in 1870,the Maratha sepoys in the Goan police, stationed at Marcela, revolted in protest against their transfer to Mozambique to quell an african rebellion. Nationalist movement: The first Goan to demand complete independence was Lusi Francisco Gomes in 1862. On September 21, 1880, a public rally organized to protest against attempts to rig the municipal elections, was fired upon in front of the Margao Church and 23 people fell dead on the spot. The rally was led by Jose Ignacio de Loyola and Roque Correia Afonso. In 1910, Portugal became a Republic. In 1928, Dr. Tristao Braganza Cunha organized the Goa Congress Committee and affiliated it to the Indian National Congress.

As the freedom movement in India gathered momentum, the struggle for freedom in Goa too became more pronounced. A prominent figure in this struggle was Luis de Menezes Braganza, who advocated a republican form of Government. The freedom movement entered a crucial phase on June 18, 1946 when the socialist leader, Dr. Ram Manohar Lohia, launched a civil disobedience movement, at Margao. On August 18, a meeting of Goan Nationalists was held at Londa, the southern gateway to the territory and founded the National Congress (Goa) which took up an armed struggle. Many lost their lives and many others were deported to Portugal, Angola and Cabo Verde for long periods of imprisonment.

The movement scored its first victory in 1954 when Dadra and Nagar-Haveli, a land block near Daman, was liberated. The Azad Gomantak Dal, which was the sword-arm of the movement, continued its armed challenge. Meanwhile, the focus had shifted to the United Nations on the repressive measures adopted by the Salazar regime in Goa. Though the action was in Goa, the brain of the movement was in Bombay where a Goa Action Committee was formed in 1958 under the leadership of Prof. Aloysius Soares. In December 1961, an Indian merchant vessel was fired upon by the Portuguese from the Anjadiv Island, near Karwar. Ultimately, the Government of India decided to act when news reached Delhi of a meeting in Panaji between the Portuguese Governor-General and the Pakistani Army Chief. "Operation Vijay" under Maj.-General K. P. Candeth, was launched on the night of December 18 and by next day, December 19, 1961, without any serious resistance, Goa was brought together with the Indian Union.

After Liberation: On December 20, 1961 Maj.-Gen. K. P. Candeth took over as Military Governor of Goa, Daman and Diu from the Portuguese Governor-General Manuel Antonio Vassallo e Silva. Under the constitution (twelfth amendment) act, 1962, Goa, Daman and Diu, as a single administrative unit, was integrated with the Indian Union as a Union Territory with effect from December 20, 1961. On March 24, 1962 Goa's first Marathi daily 'Gomantak' hit the stands. On June 8, T Sivasankar, was sworn in as the first Lt.-Governor of Goa and on September 24 the same year, a 29-member informal consultative council was constituted as the forerunner of an elected legislature. One month later, elections were held to 149 village panchayats in the Union Territory. On February 18, 1963, Goa's first English daily, "the Navhind Times" was launched. Soon after, elections were announced and Jawaharlal Nehru visited the territory from May 22 to 25. On August one, Harijans were allowed entry into the Mangeshi Temple.

Elections to the first Goa Assembly were held on December nine and the Maharashtrawadi Gomantak Party, led by Dayanand Bandodkar, was swept into power. The MGP's main plank was Goa's merger with Maharashtra, leaving Daman and Diu to be merged with Gujarat. The MGP had won 18 of the 30 seats while the United Goans Party, led by Dr. Jack de Sequeira, won 12 seats. The Indian National Congress, headed by Purushotham Kakodkar, drew a blank. The Bandodkar Ministry was installed in office in the presence of Dr. Zakir Hussein, Vice-President of India.



On September 1, 1964, the jurisdiction over the Union Territory was transferred from the ministry of External Affairs to the Union Home Ministry. In 1966, the Goa Daman and Diu assembly passed a resolution demanding Goa's merger with Maharashtra and integration of Daman and Diu with Gujarat. To meet the political compulsions, the Union Government enacted the Goa, Daman and Diu Opinion Poll Act and on that authority held the opinion poll, the first in the country, on January 16, 1967. The verdict was against the merger and the region remained a Union Territory and the statehood demand became louder. In the March 28 elections, the MGP which lost the Opinion Poll, was returned to power under the leadership of Mr. Bandodkar.

Two years later, on February 7, 1969, Mohan Ranade, a Goan freedom-figher, released from Portuguese jail, arrived in Goa while another freedom-fighter and poet, Dr. Telo Mascarenhas returned home from Portuguese jail on August 13, 1970. In the 1972 elections to the assembly, Bandodkar again led the MGP to power but the sports-loving chief minister, affectionately called "bhau" (elder brother) by even his detractors, passed away following a massive heart attack on August 13, 1973. His eldest daughter, Mrs. Sasikala Kakodkar, who was a minister of state then, took over as Chief Minister. She continued the MGP's electoral victory by sweeping the polls in 1977 but was felled by factionalism on April 27, 1979. In the next elections in January, 1980, the Indian National Congress was elected to power for the first time and Pratapsingh S. Rane, a former MGP leader and minister, who resigned to join the Congress, became the Chief Minister. He retained his leadership in the 1985 elections too.

State of Economy: Essentially export-oriented because of iron ore and manganese deposits, Goa is making a determined bid to stand on its own. Paddy is the main agricultural crop, followed by ragi, cashew and coconut. Rice is the staple food of Goans. Rice production 52,000 tonnes at the time of liberation, has gone up to 1.62 lakh tonnes.

Fragrant Culture

Goa's colonial past, in one sense, is also its wealth. The State is a place where the East and the West blend admirably, the two stimulating and supplementing each other, enriching the entire cultural milieu in the process. In the realm of music and art this fascinating fusion has left a fragrance and flavour that has survived vicious vicissitudes over centuries.

There are big names—all unforgettable. The long list begins with master Dinanath Mangueshkar, the father of the famous Mangeshkar sisters, Lata and Asha, "layabhaskar" parvatkar, described as a "miracle in rhythm", Smt. Hirabai Pednekar, the incomparable Kesarbai Kerkar and Mogubai Kurdikar (both disciples of the legendary Alladiya Khan) and of course, the contemporary rage, Kishori Amonkar, daughter of Mogubai.

Lata Mangeshkar, India's "melody queen", has refused to perform in Goa so far, piqued as she was by the manner in which her celebrated father first and then she herself were treated by those who control the famous Mangueshi Temple, in Ponda.

But, what will catch the eye of a visitor to Panaji first will be the statue of Abbe Faria, the father of "hypnotism". Under his out stretched hands lies a lass and the statue, right by the side of the Government Secretariat, has hypnotised visitors from all over the globe. Born in Candolim village on May 30, 1756, Jose Custodio de Faria, Abbe Faria had a disturbed childhood. Both this father and mother were from families which prided themselves as Gowd Saraswat Brahmins. Faria's father was a seminarian and had received minor orders when he fell in love with Rosa Maria. The torrid love affair soon cooled off, ending in a canonically decreed separation.

Another celebrity was Fr. Jose Vaz, who, proud of his brahmin ancestry, established the congregation of "Oratorians of India", with a condition that "only Brahmins could join this order." Fr. Jose later went to Sri Lanka (Ceylon) where he is now revered as the "venerable Apostle of Ceylon," as St. Thomas in Kerala.

Nobody can forget Dr. T. B. Cunha, who was described by Sardar K. M. Panikkar, as the father of Goa's freedom movement." A fluent writer and forceful orator, Dr. Cunha's full name was, Antonio Sebastia Pedro dos Remedios Franciso Tome Tristao de Braganca Cunha. Nehru mentioned about Dr. Cunha thus: "What is worth remembering is that this (Goa) small territory has produced a relatively large number of men and women who have sacrificed much in this struggle. Among them a name that stands out is that of Dr. T. B. Cunha."

Personalities apart, Goa offers to a visitor a vast variety of art and music. The "mando" (love songs of the Catholics), the Jathras (temple festival), the carnival, a heady three-day festival of fun and frolic preceding the observance of lent, the stage, known as the "theatre"—all blend so admirably that a visitor gets to know the best in the west and the east.

But personalities do merit mention. One of India's greatest Editors, Mr. Frank Moraes, his son Dom, Mr. S. Mulgaonkar, Mr. Malharo Sardesai, the "Pakwaj" maestro, Air Marshal Pinto and Air Marshal Moolgaonkar, the Telco chairman S. Mulgaonkar and then the indomitable Julius F. Rebeiro, the Punjab Police Chief, are only a few among them.

Fish, like rice, is an important component of the Goans' food. With a 105 km long coastline, four thousand hectares of marshy land and 12,000 hectares of paddy land and 100 hectares of fresh water sources provide ideal setting for a flourishing trade. Annual fish catch is around 56,000 tonnes. A fleet of 1551 trawlers and 2450 country craft are engaged in fishing which sustains a work force of 40,000 people.

Iron ore exports aggregated to 12.08 million tonnes, main buyer being Japan. There are twelve large industrial units, eleven medium-scale units and 3500 small-scale units. Annual growth rate of Goa during 25 years since liberation is estimated at six per cent while the per capita income of Rs. 3811 at the current price index, is second only to that of the Punjab.

Education: Literacy rate went up from 30.67 in 1961 to 57 per cent; primary schools: 1272; upper primary schools: 439; high schools: 297; higher secondary schools: 23; colleges 18; (including professional colleges) university: one, inaugurated on June 30, 1985.

Health: There are 33 Government and 69 private hospitals and 31 rural dispensaries; the Goa Medical School, the oldest in Asia was upgraded into a Medical College after liberation.

Tourism is gaining momentum as a major industry in Goa. On an average a million people, including 1.25 lakh foreigners, visit Goa. Dabolim airport, near the port town of Vasco-da-Gama, is equipped to receive chartered flights. The territory is known for its numerous beaches such as Calangute, Colva and Vagator.

Famous tourist spots in the territory are: Old Goa where is located the Basilica of Bom Jesus, which houses the casket containing the incorruptible body of St. Francis Xavier, the Apostle of Goa. Other famous shrines there are the Se Cathedral and the Assissi Church. A few km away is Ponda, where is situated the Mangueshi Siva Temple, the Santha Durga Temple and the Nagueshi Temple. Dona Paula, overlooking the confluence of the Mandovi river, (in Panaji), the Aravelam waterfalls, the Mayem lake, the Dudsagar waterfalls, the Bondla sanctuary, the Mormugao harbour and the Aguada Fort are some of the other tourist centres.

Governor: Dr. Gopal Singh; **Chief Minister:** Mr. Pratapsingh Rane.

A Million Tourists Coming

With a steady increase in the number of tourists, Goa's floating population is likely to exceed the state's resident population by the turn of the century.

The regional plan for Goa 2001 A.D. anticipates the arrival of 1.12 million tourists by the end of the century. The figure could actually cross the 1.6 million-mark if the tourists traffic in the usually lull monsoon period picks up in the years to come.

The year's sustained campaign to promote tourism during the monsoon, the season when Goa is at its loveliest, has paid dividends with tourists pouring in larger numbers.

The available statistics show that the total number of tourists vising Goa has been increasing from 120,000 in 1973 to 740,000 in 1986, registering a phenomenal increase of nearly 500 per cent in just 12 years.

Extrapolating the existing trend in the tourist traffic as well as various reports and projections made by experts from the Administrative Staff College of India, the Tata Consultancy and the UNDP, the regional plan forecasts a "reasonable" estimate of 1.12 million tourists in Goa, including 120,000 foreign visitors by 2001.

According to experts, this influx is bound to have a tremendous impact on the life as well as the economy of a stte with a present resident population of only 1.09 million.

Tourism experts have pointed out that several residential homes in the countryside could be used to accommodate tourists. Such a step would not only help preserve Goa's architectural heritage, but also provide an additional source of revenue for the owners.

Findings of a recent survey have revealed that as many as 21 per cent of the foreign tourists preferred to stay in private house. There is a proposal to encourage the use of private houses, or at least parts of them, as holiday homes, bars and restaurants by giving special incentives. If the scheme works, as envisaged, a large percentage of the growing tourist population could live in Goan vilalges amidst traditional surroundings.

Part Four
WORLD OF SPORTS

The Year Of The New World Champions

SPORTS UPDATE

A review of all the major international sports events of 1987 including the world Athletic Championship at Rome, Reliance Cup Cricket in India and Pakistan, Wimbledon, India's Davis Cup thriller at Sydney, Anand's world win at Baguio.

A photo finish in Rome, scorching square drive in Calcutta, a gentle backhand drop volley in Sydney, the world of sports presented never ending excitement. 1987 was the year of new champions.

World records took a tumble. World champions were dethroned. There were winners and losers. But no deserters. The year of the olympics is back. New aspirations, new targets. Yes, the world of sports is never at rest.

Some one had said 198
would be the year of th
athlete. So it proved to b
In late August and earl
September Rome was th
capital of the world c
sports. Rome was wher
'Big Ben' struck, Edwi
Moses sweated and Dal
Thompson fell.

At the world athletic championship Ben Johnson, the Jamaica born Canadian became the fastest human being. Running the 100 metre strip in a breathtaking 9.83 seconds, Big Ben erased Calvin Smith's world record of 9.93 seconds which was set more than four years ago in the high altitude of Colorado Springs in the U.S.

Carl Lewis, the Olympic champion was pushed back to second place. Ben Johnson, duly respecting his modesty, later declared that he would do better next year. This is the 'next year' and Olympics is round the corner.

Rome meet saw another world record tumbling. Bulgaria's Stefka Kostadinova cleared 2.09 metres in women's high jump, improving upon her own world record.

The race of the championship was predicted to be the men's 400 metres hurdles. Edwin Moses's apparently never ending victory streak was under threat from the fellow American Danny Harris. The 65000-strong crowd stood on their toes when the *monarch over the hurdles* took off. It was a photofinish, alright. When Moses charged to the tape, he was half a metre ahead of Harris and West Germany's Harald Schmid. But in the spurt to the finish, he seemed to lose ground as he breasted the tape. Harris dipped his torso forward and looked like snatching the title. But Harris failed by a hair-breadth's margin. The timing showed Moses clocking 47.46 seconds while Harris and third placed Schmid jointly timing 47.48 seconds.

The rest of the Rome story is that of missed records and titles. Jackie Joyner Kersee of United States came close to her own world record in heptathlon by 33 points. She won the gold with 7128 points. Sergie Bubka, the Russian lost his concentration while trying 6.05 metres in polevault. Though he won the gold in 5.85 metres, his own world record of 6.03 metres set earlier stood unsurpassed.

The greatest upset came in men's decathlon when the Olympic, Commonwealth and defending champion Daley Thompson lost his crown miserably. East Germany's Torsten Voss became the best all-rounder in the world with 8600 points, 219 more than West Germany's Siegfried Wentz. Soviet Union's Pavel Tarnovetsky picked the bronze. Daley finished a poor ninth with 8124 points.

The Indians were nowhere in the picture. P. T. Usha lost in 400 m hurdles semi and the relay squad comprising Ashwini Nachappa, Vandana Shanbag, Sani Joseph and Vandana Rao for 4 × 100 and Vandana Shanbag, Vandana Rao, Shiny Abraham and P. T. Usha for 4 × 400 finished last in their respective semis. The 4 × 400 squad clocked 3:31.55 sec. which is a new Asian mark.

The *Asian Track and Field Meet* in Singapore, in late July proved once again Chinas superiority in this part of the world. (That China could win only one medal, a bronze, at Rome shows how poor Asian standard is when compared to world class performance). But the highlight of the meet was the performance of Qatarimen. Talal Mansoor won both the sprints. Qatar proved superior in middle distance too.

The rest was predictable. Lydia de Vega won both the women's sprints while P. T. Usha won both 400 flat and 400 hurdles. The Indian quartret won the relay too.

Apart from Rome, the biggest sporting event of 1987 was the Reliance World Cup Cricket Championship held in India and Pakistan. Fought between October 8th and November 8th, the championship was all thrill and nerve-tingling excitement.

Proving all pundits wrong, one-day cricket took its own course. Defending champion India and Pakistan were the favourites. They did not even reach Eden Gardens, Calcutta for the final. A grossly under-estimated Australia, captained by Allan Border, beat England and won the cup.

India lost to England in the second semifinal at Bombay. Australia beat Pakistan at Lahore in the first semi. So far, in the world cup, the hosts have never won the title.

Here too, records were set. India's Chetan Sharma became the first bowler to get a hatrick in the world cup. Against New Zealand at Nagpur, he clean bowled Ken Rutherford, Ian Smith and Ewen Chatfield in successive deliveries. Vivian Richards, the West Indies captain hit 181 against Sri Lanka at Karachi to become the highest individual scorer. Till then it was Kapil Dev who had scored 175 not out at Trent Bridge Wells in 1983.

World Cup wrung the curtain down on two of the greatest players of modern cricket—Sunil Gavaskar of India and Imran Khan of Pakistan. Gavaskar had achieved everything possible in cricket. The only target which had eluded him was a one-day hundred. That he won at Nagpur against New Zealand—103 not out. Pakistan cricket owed a lot to the dynamic leadership of Imran. He lead them to victories against India in India and against England in England. World Cup was his last goal. But he could not complete the hatrick.

It was in August that Pakistan won its first ever series in England. They won the Headingly test and the other four were drawn. Earlier, in India, after a series of dull draws, Pakistan staged a sensational victory at Bangalore and clinched the series 1-0.

The Merrylbourne Cricket Club, London, celebrated their bicentinary year with a test match in August. Mike Gatting led an M.C.C. eleven against a World Eleven led by Allan Border. The thrilling match ended in a draw due to rain. Gavaskar playing for world eleven scored his first century at Lords. It was his last five-day international. Score: M.C.C.: 455 for 5; 318 for 6. Rest of the world: 421-7; 13-1.

If India lost one world crown, she won two. In Bangio, Phillipines in August India's Viswanathan Anand became the first Asian to win the *World Junior Chess Championship.* In a field of 52, including two Grand Masters and 12 International Masters, young Anand was the only undefeated player. He won 10 points in the 13 round tournament including a win against Grand Master Agdestein Simon of Norway.

The previous day, in Belfast, India's Geeth Sethi retained his world Amateur Billiards title. Including a world record break of 763, Sethi beat Joe Grech in the final.

Came September and the Indian *Davis Cup Tennis* squad created the biggest upset of the year in Sydney. They beat the defending champion Australia 3-2 in the semifinal. Ramesh Krishnan, chip of the old block Ramanathan Krishnan, won both the singles against St. John Fitzgerald and Wally Masur while the old war horse Vijay Amritraj lost to Fitzgerald, after beating Masur. The Indian pair of Anand Amritraj and S. Vasudevan lost to the Pat Cash—Peter Doohan pair.

India qualified for the finals against former champion Sweden. This is the third time India enters the final of Davis Cup. In 1966 India entetred the challenge round but lost to Australia. In 1974, India boycotted the final against South Africa as a protest against their aparthied policy.

The greatest tennis show was in July a *Wimbledon*. Australian Pat Cash outblasted Ivan Lendl 7-6 (7-5) 6-2, 7-5 to win his firs Wimbledon which was also his first grand slam title. Martina Navratilova retained the woman's crown beating West German Steffi Graff 7-5 6-3. However, the biggest upset came in the second round when reigning champion Boris Becker was thrashed by an unheralded Australian, Peter Doohan. 7-6, 4-6, 6-2, 6-4.

West Germany won the Federation Cup— the women's world title—in Vanconver in August beating holders United States.

Ivan Lendl won the U.S. open, in August, fo the third consecutive time. He beat Mat Wilander 6-7, 6-0, 7-6, 6-4. Martina Navratilova won the women's title beating Steffi Graff 7-6 (7-4) 6-1. Martina scored a tripple, winning the doubles and mixed doubles titles too.

Steffan Edberg and Hana Mandlikova wor the singles titles of the Australian Open. Edbe beat Pat Cash 6-3, 6-4, 3-6, 5-7, 6-3 and Han beat Martina 7-5, 7-6.

In *Table Tennis* China's superiority wen unchallenged. In the world championship a New Delhi they won both, the men's Swaythling Cup and the women's Corbillon cup. The beat Sweden and South Korea respectivel (both 3-0). At Macao, China's Teng Yi won the world cup beating China's own world champion Jiang Jialing 21-18, 21-15, 16-21, 21-14

Mike Tyson punched his way into the annal of *heavy weight boxing* history. He became the first undisputed champion in 9 years when h scored a unanimous 12 rounds decisio against Tony Tucker. This was in Las Vegas Tyson holds both the I.B.F. and I.B.C. titles

For *football* 1987 was the post World Cu year. In the English Football League's centen ary match at Wembley, the English Leagu Eleven beat Rest of the World team starrin Maradona and Platini 3-0.

Michael Platini, former French captain an the 'master of the midfield' retired fron international soccer. Antonio Cabrini, the Italian defender, also called it a day. He was th main architect of Italy's World Cup win i 1982, in Spain.

At Santiago, Yugoslavia won the *Worl Junior Soccer* title beating West Germany 5- in the penalty shoot-out. At the end of th regular time, the teams were locked one al

ASIAN GAMES

The origin of Asian Games goes back to 1947 when the Asian Relations Conference held at New Delhi, decided to organise an international games meet for Asian countries on the lines of Olympic games, once in four years. Since then the games have grown into the biggest sports festival in Asia.

The Games were held at New Delhi, India (1951); Manila, Philippines (1954); Tokyo, Japan (1958); Jakarta, Indonesia (1962); Bangkok, Thailand (1966); Bangkok, Thailand (1970); Teheran, Iran (1974); Bangkok, Thailand (1978); New Delhi, India (1982); Seoul, S. Korea (1986). Next Asiad, in 1990, is to be held in Beijing, China.

Seoul Asiad
Medals Tally

	G	S	B	T
China	94	82	46	222
South Korea	93	55	76	224
Japan	58	76	77	211
Iran	6	6	10	22
India	5	9	23	37
The Philippines	4	5	9	18
Thailand	3	10	13	26
Pakistan	2	3	4	9
Indonesia	1	5	14	20
Hong Kong	1	1	3	5
Qatar	1	0	3	4
Lebanon	1	0	1	2
Bahrain	1	0	1	2
Malaysia	0	5	5	10
Iraq	0	5	2	7
Jordan	0	3	1	4
Kuwait	0	1	8	9
Singapore	0	1	4	5
Saudi Arabia	0	1	0	1
Nepal	0	0	8	8
Bangladesh	0	0	1	1
Oman	0	0	1	1

G- Gold, S- Silver, B- Bronze, T- Total.

Athletics

Men: 100 m: Mansoor Talal (Qatar - 10.30, Record) 2. Hiroki Fuwa (Japan) 3. Zheng Chen (China).

200 m: Chang Jae Keun (Korea - 20.71) 2. Li Feng (China). 3. Nagura Masahiro (Japan).

400 m: Takano Susumu (Japan - 0:45.00, Asian Record) 2. Prado Isidro Del (Philippines) 3. Al Malky Mohammed Amur (Oman).

800 m: Kim Bok-Joo (Korea - 1:49.15) 2. Ryu Tae-Kyung (Korea) 3. Al Sowailem Najem (Kuwait).

1500 m: Oshida Shuji (Japan - 3:43.88) 2. Ryu Tae-Kyung (Korea) 3. Sulaiman Mohammed (Qatar).

5000 m: Kim Jong-Yoon (Korea - 13:50.63 - Record) 2. Shintaku Masanari (Japan) 3. Kanai Yutaka (Japan).

10000 m: Shintaku Masanari (Japan - 28:26.74 Record) 2. Kim Jong Yoon (Korea) 3. Seko Toshihiko (Japan).

3000 m Steeple Chase: Aikyo Shigeyuki (Japan - 8:36.98 Record) 2. Cheng Shouguo (China) 3. Nagasate Hajime (Japan).

110 m Hurdles: Yu Zhicheng (China - 14.07 Record) 2. Lu Quanbin (China) 3. Kim Jin-Tae (Korea).

400 m Hurdles: Hamada Ahamad (Bahvrin - 0:49.31, Asian Record); 2. Yoshida Ryoichi (Japan) 3. Al Douwalia Jasem (Kuwait).

20 km Walk: Zun Xiaoguang (China - 1:25:46 Record) 2. Jiang Shaohong (China) 3. Ram Chand (India).

Marathon: Nakayama Takeyuke (Japan - 2:08.21 Record) 2. Taniguchi Hiromi (Japan) 3. Ryu Jae-Sung (Korea).

High Jump: Zhn Jian Hua (China - 2.31 m) 2. Li Yunpeng (China) 3. Ujino Shuji (Japan)

Pole Vault: Ji Zebiao (China 5.40 m record) 2. Liang Xueren (China) 3. Lee Jae-Bok (Korea).

Long Jump: Kim Jong-il (Korea - 7.94 m) 2. Usui Junichi (Japan) 3. Chen Zunrong (China).

Triple Jump: Yamashita Norifumi (Japan - 17.01 m Record) 2. Park Young-Jun (Korea) 3. Zou Zhenxian (China).

Shot Put: Ma Yong Feng (China - 18.30 m) 2. Gong Yitian (China) 3. Urita Yoshihisa (Japan).

Discus Throw: Li Weinan (China - 58.28 m) 2. Meada Yuko (Japan) 3. Singh Manjit (India).

Javelin Throw: Misoguchi Kazhuhiro (Japan 76.60 m) 2. Kim Jae-Sang (Korea) 3. Park Joug-Sam (Korea).

Hammer Throw: Murofushi Shigenobu (Japan - 69.20 m) 2. Luo Jun (China) 3. Lu Dongping (China).

Decathlon: Chen Zebin (China - 7255 pts) 2. Kojo Takeshi (Japan) 3. Park Young-Jun (Korea).

4×100 m Relay: China (0:39.17 - Asian Record) 2. Japan 3. Korea.

4×100 m Relay: Japan (3:02.33 - Asian Record) 2. Iraq 3. Philippines.

Women 100 m: Lydia De Vega (Philippines - 11.53 s Record) 2. P.T. Usha (India) Ratjai Sripet (Thailand).

200 m: P.T. Usha (India - 23.44 Record) 2. Lydia De Vega 3. Mi Sun Park (Korea).

400 m: P. T. Usha (0:52.16 - Record) 2. Shiny Abraham (India) 3. Hiromi Isosak (Japan).

800 m: Chun Ae Him (Korea - 2:05.72) 2. Liuxia Yang (China) 3. Josephina Mary Singarayar (Malaysia).

1500 m: Chun Ae Lim (Korea - 4:21.38) 2. Liuxia Yang (China) 3. Wel Ja Kim (Korea).

3000 m: Chun Ae Lim (09:11.92 — Record) 2: Xiuyun Zhang (China) 3. Suman Rawat (India).

10,000 m: Xiuting Wang (China — 32:47.77 — Asian Record) 2. Kumi Araki (Japan) Hongyan Xiao (China).

100 m Hurdles: Chen Kemei (China - 13.78) 2. Akimoto Chizuko (Japan) 3. Jojima Naomi (Japan).

400 m Hurdles: P.T. Usha (India - 56.08-Record), 2. Zhao Qianqnian (China) 3. Chen Juying (China).

10 km Walk: Guan Ping (China 0:48:40) 2. Xu Yongjiu (China) 3. Hirayama Hideko (Japan).

Marathon: Asai Eriko (Japan - 2:41:03) Miyahara Misoko (Japan) Wen Yawmin (China).

High Jump: Sato Megumi (Japan - 1.89 m) Zheng Dazhen (China) Kim Hee Sun (Korea).

Long Jump: Liao Wenfen (China - 6.37) Huang Doug Huo (China) Isogai Minako (Japan).

Shot Put: Huang Zhihong (China - 17.51 m) Cong Yuzhen (China) Suzuki Aya (Japan).

Discus Throw: Hon Xuemei (China - 59.28-Record) LiXiaohui (China), Lee Sang Yuk (Korea).

Javelin Throw: Li Baolian (China - 59.42 m), Matsui Emi (Japan) Jang Sun Hee (Korea).

Heptathlon: Zhu Yuquing (China - 5580 pts Record) Ye Liauying (China) Ji Jung Mi (Korea).

4×100 m Relay: China (0:44.78 Asian Record) Thailand, Korea.

4×400 m Relay: India (3:34.58 - Record) Japan, China.

Champions

Athletics: 1. China, 2. Japan, 3. Korea.
Gymnastics: 1. China; 2. Korea; 3. Japan.
Golf: 1. Korea; 2. Philippines; 3. Japan.
Rowing: 1. China, 2. Japan, 3. Korea.
Hand ball: 1. Korea, 2. China, 3. Japan.
Shooting: 1. China, 2. Korea, 3. Japan.
Cycling: 1. Japan, 2. China, 3. Korea.
Archery: 1. Korea, 2. Japan, 3. China.
Hockey: 1. Korea, 2. Japan, 3. Pakistan.
Table Tennis: 1. China, 2. Korea, 3. Japan
Yachting: Korea, 2. China, 3. Pakistan.
Weight Lifting: 1. China, 2. Korea, 3. Japan
Bowling: 1. Japan, 2. Philipines, 3. Korea.
Aquatics: 1. Japan, 2. China, 3. Korea.
Tennis: 1. Korea, 2. China, Indonesia.
Basketball: 1. China, 2. Korea, 3. Japan.
Fencing: 1. China, 2. Korea, 3. Japan.
Equestrian: 1. Japan, 2. Korea, 3. Kuwait.
Taekwondo: 1. Korea, 2. Iran, 2. Jordan.
Judo: 1. Korea; 2. Japan, 3. China.
Wrestling: 1. Korea, 2. Japan, 3. Iran.
Badminton: 1. China, 2. Korea, 3. Japan.
Boxing: 1. Korea, 2. India, 3. Thailand.
Volleyball: 1. China, 2. Korea, 3. Japan.
Football: 1. Korea, 2. Saudi Arabia, 3. Kuwait

Winners for India

Gold: P.T. Usha (200 m, 400 m, 400 hurdles, 4×400 m Relay), Kartar Singh (100 k Freestyle wrestling).

Silver: P.T. Usha (100 m), Shiny Abraha (400 m), Sahu Birajdar, Sir Jairam, Daljit Singh Jaipal Singh (All Boxing), Soma Dutta (Shoo ing), Khazan Singh Tokas (Swimming), Farok Tarapore, Dhruv Bhandari (Yachting).

Bronze: Chand Ram (20 km walking), Manj Singh (Discus Throw), Suman Rawat (3000 G.D. Kamble, John Williams, Gopal Dewan Manjit Pal Singh, Bhadur Gurung (All Boxing J.S. Ahluwalia, Gulam (Mohammed Kha Raghubir Singh, Adhiraj Singh (Equestrian Sandeep Byala, Cawas Billimoria, Shyam Sing Gurjar, Bunnu Singh (all Judo), Joydip Da Bhagirath Samai, Ghisalal Yadav (Shooting), Muthuswami (Weight lifting), Suresh Kuma Gurmakh Singh (Wrestling), Badminton Men team, Hockey (men and women), Volleyba (men).

COMMONWEALTH GAMES

Commonwealth Games are conducted every four years on the lines of the Olympics, but entries are limited to Commonwealth countries only. Games have been staged in the following cities.

1930 Hamilton (Bermuda), 34 London (Britain), 38 Sydney (Australia), 50 Auckland (New Zealand), 54 Vancouver (Canada), 58 Cardiff (Britain), 62 Perth (Australia), 66 Kingston (Jamaica), 70 Edinburgh (Britain), 74 Christ Church (New Zealand), 78 Edmonton (Canada), 82 Brisbane (Australia), 86 Edinburgh (England).

Medal position in the 13th Commonwealth Games held at Edinhurgh (England) in 1986.

Country	Gold	Silver	Bronze
England	52	42	48
Canada	51	34	30
Australia	40	46	34
New Zealand	8	16	14
Wales	6	5	12
Scotland	3	12	18
N. Ireland	2	4	9
Isle of Man	1	0	0
Guernsey	0	2	0
Swaziland	0	1	1
Hong Kong	0	0	2
Malawi	0	0	2
Botswana	0	0	1
Jersey	0	0	1
Singapore	0	0	1

ATHLETICS

World Athletic Meet, Rome

Men 100 m: 1.Ben Johnson,Canada(9.83). 2. Carl Lewis, U.S. (9.93). 3. Raymond Stewart, Jamaica (10.08).

200 m: 1. Calvin Smith, U.S. (20.16). 2. Guilles Queneherve, France (20.16). 3. John Regis, Britain (20.18).

400 m: 1. Thomas Schonlebe, East Germany (44.33). 2. Innocent Egbunike, Nigeria (44.56). 3. Harry Reynolds, U.S. (44.80).

800 m: 1. Billy Konchellah, Kenya (1:43.06). 2. Peter Eliot, Britain (1:43.41). 3. Jose Louis Barbosa, Brazil (1:43.76).

1500 m: 1. Abdi Bile, Somalia (3:36.80). 2. Louise Jose Gonsalves, Spain (3:38.03). 3. Jim Spivey, U.S. (3:38.82).

3000 m steeple chase: 1. Francesco Panetta, Italy (8:8.57). 2. Hagen Melzer, East Germany (8:10.32). 3. William Van Dijck, Belgium (8:12.18).

5000 m: 1. Said Aouita, Morocco (13:26.46). 2. Domingo Castro, Portugal (13:27.59). 3. Jack Buckner, Britain (13:27.74).

10,000 m: 1. Paul Kipkoech, Kenya (27:38.63). 2. Francesco Panetta, Italy (27:48.67). 3. Hansjoerg Kunze, East Germany (27:50.37).

100 m hurdles: 1. Greg Foster, U.S. (13.21). 2. Jon Ridgeon, Britain (13.29). 3. Colin Jackson, Britain (13.38).

400 m hurdles: 1. Edwin Moses, U.S. (47.46). 2. Danny Harris, U.S. (47.48). 3. Harold Schmid, West Germany (47.48).

20 km walk: 1. Maurizio Damilano, Italy (1 hr. 20 mts. 45). 2. Josef Pribilinec, Czechoslovakia (1:21.07). 3. Jose Marin, Spain (1:21.24).

50 km walk: 1. Hartwig Gauder, East Germany (3 hr. 40.53). 2. Ronal Wergel, E. Germany (3:41.30). 3. Vyacheslav Ivanenko, U.S.S.R. (3:44.02).

Marathon: 1. Douglas Wakihuru, Kenya (2:11.48). 2. Ahmed Saleh, Djibouti (2:12.30). 3. Gelindo Bordin, Italy (2:12.40).

Long jump: 1. Carl Lewis, U.S. (8.67 m). 2. Robert Emmiyan, USSR (8.53). 3. Giovani Evangelisti, Italy (8.38).

High jump: 1. Patrick Sjoberg, Sweden (2.38 m). 2. Igor Paklin, USSR (2.38). 3. Gennady Avdeyenko, USSR (2.38).

Pole vault: 1. Sergei Bubka, USSR (5.85 m). 2. Thierry Vigneron, France (5.80). 3. Rodoion Gataulin, USSR (5.80).

Discus throw: 1. Juerger Schult, E. Germany (68.74 m). 2. John Powell, U.S. (66.23). 3. Louis Delis, Cuba (66.02).

Shotput: 1. Werner Guenthder, Sweden (22.23 m).

Decathlon: 1. Torsten Voss, E. Germany (8600 points). 2. Siegfried Wentz, W. Germany (8381). 3. Pavel Tarnovetsky USSR.

Relay: 4 × 400: 1. U.S. (37.90). 2. U.S.S.R. 3. Jamaica

Women

100 m: 1. Silke Gladisch, E. Germany (10.90 sec.), Heike Dreschler, E. Germany (11.00),

Big Ben Strikes

Rome — the last Sunday of August. Under a clear blue morning sky, a black lightning strikes the olympic stadium. It lasts exactly 9.83 seconds. Yes, Big Ben has struck. The whole world has heard it.

Ben Johnson (24) of Canada streaked out of the starting blocks, whizzed past the finishing line in 9.83 seconds in the 100 m race at the World Track and Field Championship and became world's fastest human being. Calvin Smith's record of 9.95s lay scuttled. This could well be the race of the century.

This Jamaica born Canadian is only 5 ft 10 inches small. But beware, this is explosive energy. Gun to finish, Big Ben is all elegance. His record is all the more glorious when you consider that it's not a couple of hundredth of a second that he broke in these days of electronic timing. It is a clear one tenth of a second. Also remember, the man he beat was the olympic and world champion Carl Lewis.

Ben Johnson is one of the seven children of a god fearing Jamaican family which emigrated to Toronto, Canada, years ago. Coached by Charlie French, Ben gained international attention when he won silver in the 1982 Commonwealth Games. In the first World Meet at Helsinki (1983) he finished sixth in the semi. At L.A. Olympics (84) he won bronze. From then on, Ben was among the top few.

The champion, who is the fastest starter off the blocks, is soft spoken and modest. However, he could not help telling the reporters at Rome: "At an altitude I guess I could do it in 9.75". Surely, this man is in one hell of a hurry!

Merlene Ottey, Jamaica (11.04).

200 m: 1. Silke Gladisch (21.73). 2. Florence Griffiths, U.S. (21.75). 3. Merlene Ottey (22.05).

400 m: 1. Olga Bryzgina, U.S.S.R. (49.38). 2. Petra Mueller, E. Germany (49.94). 3. Kirsten Emmelman (50.20).

400 hurdles: 1. Sabine Buseh, E. Germany (53.63). 2. Debra Flintoff King, Australia. 3. Cornelia Ulrich, E. Germany.

800 m: 1. Sigrun Wodars, E. Germany (1:55.26). 2. Christine Wachtel, E. Germany (1:55.32). 3. Linboy Gurina, USSR (1:55.56).

1500 m: 1. Tatiana Samolenko, USSR (3:58 56). 2. Hildegard Koerner, E. Germany (3:58.67). 3. Sandra Gasser, Switzerland (3:59.06).

3000 m: Tatiana Samolenko (8:38.73). 2. Mariciea Puica, Romania. 3. Ulrike Bruns, E. Germany.

10,000 m: 1. Ingrid Kristiansen, Norway (33:07.92). 2. Elena Zhupieva, USSR. 3. Katharine Ulrich, E. Germany.

Marathon: 1. Rosa Mota, Portugal (2 hr: 25.17). 2. Zoja Ivanova, USSR (2:32.38). 3. Jocelyne Villeton, France.

10 km walk: Irina Strakhova, USSR (44:12). 2. Kerry Saxby, Australia (44:23). 3. Yan Hong, China (44:42).

High jump: 1. Stefka Kostadinova, Bulgaria (2.09 m). 2. Tamara Bykova, USSR. 3. Suzane Beyer, E. Germany.

Shotput: 1. Natalia Lisovaskaya, USSR (21.24 m). 2. Kathrin Nemke, E. Germany (21:21). 3. Ines Mueller, E. Germany (20.76).

Javelin: 1.Fatima Whitbread, Britain(76.64 m). 2. Petra Felke, E. Germany (71.76). 3. Beate Peters, W. Germany (68.82).

Long jump: 1. Jackie Joyner Kersee, U.S. (7.36 m). 2. Elena Belevkava, USSR (7.14). 3. Heike Dreschler, E. Germany (7.13).

Discus throw: 1. Martina Hellman, E. Germany (73.26 m). 2. Diana Gansky (70.12). 3. Kristove Tsventanska, Bulgaria (68.82).

Heptathlon: 1. Jackie Joyner Kersee (7128 points). 2. Larissa Nikitina, USSR (6564). 3. Jance Frederick, U.S. (6502).

4 × 100 Relay: 1. U.S. (41.58 s). 2. E. Germany (41.95). 3. U.S.S.R. (42.33).

4 × 400 relay: 1. E. Germany (3:18.63). 2. U.S.S.R. (3:19.50). 3. U.S. (3:21.04).

Medal Tally

	Gold	Silver	Bronze
East Germany	10	11	10
United States	9	5	5
U.S.S.R.	7	12	6
Bulgaria	3	—	1
Kenya	3	—	—
Italy	2	2	2
Britain	1	3	3
Portugal	1	1	—
Switzerland	1	—	1
Canada	1	—	—
Finland	1	—	—
Morocco	1	—	—
Norway	1	—	—
Somalia	1	—	—
Sweden	1	—	—
France	—	2	1
Australia	—	2	—
West Germany	—	1	2
Czechoslavakia	—	1	1
Spain	—	1	1
Djibouti	—	1	—
Nigeria	—	1	—
Romania	—	1	—
Jamaica	—	—	4
Cuba	—	—	2
Belgium	—	—	1
Brazil	—	—	1
China	—	—	1

I.A.A.F. Permit Meet

International Amateur Athletic Federation's Permit meet was held in India for the first time. New Delhi was the venue.

Men

100 m: 1. Thomas Jefferson (US), 2. Charles Louis Seck (Senegal), 3. M'Baye M'Bagnick (Senegal) (10.20 s).

3,000 m steeplechase: 1. Rajinder Singh (Ind.), 2. Shamsuddin (Ind.), 3. Jai Singh (Ind.) (8:55.08).

Pole vault: 1. Bernhard Zintl (FRG), 2. Vijay Pal Singh (Ind.), 3. S. S. Tanwar (Ind.) (5.40 m).

Shotput: 1. Avtar Singh (Ind.), 2. Mohammed Merza (Qatar), 3. Yaquoub Yusuf (Qatar) (17.00 m).

200 m: 1. M'Baye M'Bagnick (Senegal), 2. N. Rami Reddy (Ind.), 3. C. Boda (Mauritius) (21.34 s).

800 m: 1. Boye Check Tidiane (Senegal), 2. Meesaq Rizvi (Pak.), 3. Budhwa Oraon (Ind.) (1:47.86).

5000 m: 1. Tara Singh (Ind.), 2. Danveer Singh (Ind.), 3. E. Rajender (Ind.) (14:48.50).

400 m Hurdles: 1. C. Haridas (Ind.), 2. Jagir Singh (Ind.), 3. Bhaskar (Ind.) (53.75 s).

High Jump: 1. N. Annavi (Ind.), 2. Veerappan (Ind.), 3. Dharminder Sinha (Ind.) (2.10 m).

Long Jump: 1. Kim Won Jin (S. Korea), 2. G. R. Shyamkumar (Ind.), 3. M'Bengue Badaria (Senegal) 7.73 m).

Javelin throw: 1. Dag Wennlund (Sweden), 2. Arop Justin (Uganda), 3. Peter Borglund (Sweden) (75.84 m).

400 m: 1. Ulrich Sclepeutz (FRG), 2. Muralidharan (Ind.), 3. Ravindrakumar Fernando (Sri Lanka) (47.05 s).

1500 m: 1. Boye Check Tidiane (Senegal), 2. M. T. Belliappa (Ind.), 3. Subhash Mathew (Ind.) (3:59.00).

110 hurdles: 1. Benny John (Ind.), 2. Ashish Mondal (Ind.), 3. Vijay Kumar (Ind.) (14.33 s).

Triple Jump: 1. Rajinder Singh (Ind.), 2. Jayakrishna (Ind.), 3. John Mathew (Ind.) (14.97 m).

Discus throw: 1. Kuldeep Singh (Ind.), 2. A. K. Singh (Ind.), 3. Asrar Gul (Pak.) (49.12 m).

Women

100 m: 1. Ashwini Nachappa (Ind.), 2. Nancy Vallecia (Ecuador), 3. Zenia Ayrton (Ind.) (11.94 s).

800 m: 1. Shiny Abraham (Ind.), 2. I. Carparen (Mauritius), 3. Beena Peter (Ind.) (2:06.47).

Discus throw: 1. Vijamala Bhanot (Ind.), 2. Harpreet Kaur (Ind.), 3. Neelam Kumari (Ind.) (45.06 m)

200 m: 1. Nancy Vallecia (Ecuador), 2. Ashwini Nachappa (Ind.), 3. Jayamini Illeperuma (Sri Lanka) and S. Vyapuri (Mauritius) (24.04 s).

400 m hurdles: 1. P. T. Usha (Ind.), 2. Shantimol Phillips (Ind.), 3. Virge Viss (USSR).

400 m: 1. P. T. Usha (Ind.), 2. Shiny Abraham (Ind.), 3. Budhi Kumari (Nepal) (52.6 s).

1,500 m: 1. Suman Rawat (Ind.), 2. Surjit Kaur (Ind.), 3. K. A. Molly (Ind.) (4:33.10).

Javelin throw: 1. Shiny Verghese (Ind.), 2. Razia Shaikh (Ind.), 3. Gurbari Hembran (Ind.) (45.88 m).

World Cup Athletics

Canberra, Australia. In Oct. 85 world record holders in 12 out of 32 individual events competed but only two world records were broken, both by GDR women, Martina Koch in 400 m and in the team quarter in 4×100. U.S. men team won championship beating USSR and GDR women won vs. Soviets. Asian team under P.T. Usha with 7 Indians were sixth in women section and seventh and last in men's section.

Men: 1. U.S. 123, 2. USSR 115, 3. GDR 114, 4. Europe 97, 5. Africa 81,. 6. Oceanic 65.

Women: 1. East Germany (GDR) 121, 2. USSR 105, 3. Europe 86, 4. USA 61, 5. Oceanic 52, 6. Asia 42, 7. Africa 41.

Best by Indian representatives were 7th place in 400 m hurdles (56.36 sec) by P.T. Usha and 7th by Balwinder Singh in shot put. Shiny Abraham (800 m), Vandana Rao (200 m), Bageicha Singh (1500 m) and Raghbir Singh (Hammer) were placed eighth in their events.

World University Meet

Zagreb, July 1987: United States topped the medal table with 26 golds.

Medal Table

	G	S	B
U.S.	26	19	24
U.S.S.R.	25	33	21
Romania	21	12	10
Italy	12	8	10
China	9	9	12
Yugoslavia	7	7	5
E. Germany	5	3	5
Hungary	5	2	5
Britain	4	1	4
Netherlands	3	10	8
W. Germany	3	5	5
Bulgaria	3	4	1
Japan	3	3	6
Poland	3	1	2
Cuba	1	3	2

Asian Track and Field Meet

Singapore: The high light of the July meet was the stunning performance of Qatar in sprint and middle distance events. Qatar has never been an athletic challenge in this part of the world. But in Singapore, they carved their brilliance in gold. Talal Mansoor stole the limelight winning both the sprints. Esmael Mohammed Yousuf won the 800 and Ahman Ebrahim won the 5000, in style.

P.T. Usha's supremacy in the sprint events was shaken when Lydia De Vega of Philippines won the 100 m well ahead of her.

Men

100 m: 1. Talal Manzoor (Qatar) 10.41 sec. 2. Chen Hsin-fu (Taiwan) 10.56. 3. Li Tao (China) 10.57.

200 m: 1. Talal Manzoor (Qatar) 20.71 sec. 2. Li Feng (China) 3. Chen Hsin-fu (Taiwan).

400 m: 1. Mohd. Amer Al Malki (Oman) 45.77 sec. 2. Nordin Mohd. Jadi (Malaysia). 3. Yoshito Toyada (Japan).

400 m Hurdles: 1. Shigenori Omori (Japan) 50.09 sec. 2. Jasim Al-Duwella (Kuwait). 3. Nasser Maho Ahmed (Qatar).

800 m: 1. Esmael Mohd. Yousuf (Qatar) 1 min. 47.81 sec. 2. Tae Kyung-Ryu (South Korea) 1.:48.00. 3. R. Haridoss (Malaysia) 1:48.27.

1500 m: 1. Duan Xiuquan (China) 3 mins. 45.11 secs. 2. Shigeki Nakayama (Japan), 3. Yutaka Hoshino (Japan).

5,000 m: 1. Ahman Ebrahim (Qatar) 14 mins. 09.29 sec. 2. Yoshiaki Iwasa (Japan), 3. Cai Shanyan (China).

10 km walk: 1. An Limei (China) 52 mins. 40.21 sec. 2.Yuki Nanbu (Japan), 3. Hyun Joo-Park (South Korea)

High Jump: 1. Liu Yupeng (China) 2.24 m, 2. Hyun Uk-Cho (South Korea), 3. Ramjit Nairu (Malaysia).

Long Jump: 1. Won Jun Kim (South Korea) 8.00 m, 2. Liu Yuhuang (China), 3. Wang Shijie (China).

Discus Throw: 1. Li Weinan (China) 56.10 m (Asian Championship record), 2. Wang Dao Ming (China) 3. Mansour Ghorbani (Iran).

Javelin Throw: 1. Takahiro Yamada (Japan) 72.62 m. 2. Frans Mahuse (Indonesia), 3. Ji Zhanzheng (China).

Shotput: 1. Ma Younfeng (China) 18.32 m, 2. Gong Yitian (China), 3. Balwinder Singh (India) 17.56 m.

Rome Meet's Measuring Error

Italian sports authorities are inquiring into the men's long jump at last September's World Athletics Championship in Rome after an apprarent measuring error of more than half a metre was discovered, s spokesman said.

Augusto Frasca, spokesman for the Italian Atheletics Federation (FIDAL), revealed details of the inquiry following a television report which cast major doubt on the accuracy of measurements in the event.

State television used a video and computer technique called 'telebeam' which it claimed showed that the top three finishers had not jumped as far as had been measured by electronic equipment at the event.

"We cannot understand how something like this could have happened. It is clear that there was a mistake. Even if telebeam is approximate, one sees that the distance is not that which was given (in September)" Fraca said.

The difference, according to the television report would not have affected gold medal winner Carl Lewis, of the United States, or Soviet silver medallist Robert Emmiyan. But Italy's Giovanni Evangelisti, who took the bronze, was apparently outjumped by American fourth-place finisher Larry Myricks.

In the September 5 event, Lewis won the gold in 8.67 metres, Emmiyan was second with 8.53 and Evangelisti third with 8.38. Myricks, of the United States, was fourth with 8.33.

The telebeam measurement, which has a three per cent margin of error, showed that Evangelisti's jump was about 58 centimetres under the official result.

In the Evangelisti case, "The (official) measurement appears to be absolutely wrong", Frasca said. "All the jumps measured (on television) were less than that on the day of the event but not as clearly as Evangelisti's".

The paper quoted Evangelisti as saying he was willing to return the bronze medal if the telebeam results were accurate. In a stinging front-page editorial the paper said the episode was an embarrassment for Italy.

Pole Vault: 1. Liang Xueren (China) 5.35 m (new meet record) 2. Teruhisa Kamiya (Japan), 3. Guu Jin Shoei (Taipei).

Women

100 m: 1. Lydia De Vega (Philippines) 11.43 sec. 2. P.T. Usha (India) 11.74, 3. Tain Yumei (China) 11.76.

200 m: 1. Lydia De Vega (Philippines) 23.38 sec. 2. Pan Weixin (China), 3. Hiromi Isozaki (Japan)

400 m: 1. P.T. Usha (India) 52.31 sec. 2. Vandana Shanbag (India), 3. Xie Zhiling (China).

110 m Hurdles: 1. Feng Yinghua (China) 13.56 sec. 2. Chen Wen Ing (Taiwan), 3. Wang Shu Hwa (Taiwan).

400 m Hurdles: 1. P.T. Usha (India) 56.48 secs. 3. Chan Fen Hua (Taiwan), 3. Hitomi Koshimoto (Japan).

800 m: 1. Se Bum-choi (South Korea) 2 min. 05.11 secs. 2. Jiang Shuling (China) 2 min. 05.21 secs. 3. Lim Chun-ae (South Korea) 2 min. 05.39 secs.

3000 m: 1. Kim Chun-mae (North Korea) 9 min. 17.19 secs. 2. Zhang Xiuyun (China), 3. Kim Ryon-sun (North Korea).

10 km Walk: 1. An Limei (China) 52 mins. 40.21 sec., 2. Yuki Nanbu (Japan), 3. Park Hyun-joo (South Korea).

High Jump: 1. Dong Yu Ping (China) 1.83 m, 2. Ma Miaolan (China), 3. Jung Mi Ji (Korea).

Long Jump: 1. Wang Zhihui (China) 6.70 m. 2. Liao Wenea (China), 3. Li Yong Ae (North Korea).

Shot Put: 1. Cong Yuzhen (China) 18.17 m., 2. Mi Sun-choi (Korea), 3. Lee Chin Hua (Taiwan).

Discus Throw: 1. Xing Ailan (China) 58.08 m, 2. Hye Young Jung (South Korea), 3. Juliana Effendy (Indonesia).

Javelin Throw: 1. Li Baolian (China) 60.12 m, 2. Lee Hui Chen (Taiwan), 3. Naomi Tokuyama (Japan)

Heptathlon: 1. Dong Yu Ping (China) 60.36

points (Asian record); 2. Ma Miaolan (China), 3. Wang Shu Hwa (Taiwan).

Medal Table

	G	S	B
China	21	13	8
Qatar	5	2	1
Japan	4	7	7
South Korea	3	7	4
India	3	3	1
Philippines	2	–	–
North Korea	1	–	4
Oman	1	–	–
Taipei	–	4	10
Malaysia	–	2	2
Indonesia	–	1	1
Kuwait	–	1	–

South Asian Federation Games

Calcutta, November 1987; In practically one sided competitions in most of the events, India came top once again.

Medal Table

	G	S	B
India	91	45	19
Pakistan	16	36	13
Srilanka	4	8	23
Bangladesh	3	19	32
Nepal	2	7	33
Bhutan	0	1	5

The next meet is to be held in Islamabad in 1989.

World Cup Marathon

Seoul, April 1987: Ahmed Saleh of Djibouti (2 hr 10 min 55 seconds) and Geoja Invanova of Soviet Union (2:30.39) won the men's and women's title respectively.

National Open Athletics

Mangalore, May 1987: Services won men's team title - 129 points. Railways came second: 108 points. Thrid: Police - 42.

Railways won women's title -- 137 points. Second: Karnataka - 41; Third: Food Corporation of India: 37.

P.T. Usha won 4 golds. Anand Shetty of Heavy Engineering and Aswini Nachapa of Karnataka became the fastest man and woman in the country.

Junior National Athletics

Bangalore: January '87 Kerala won the overall championship with 220 points. Karnataka finished second with 208 points.

Individual champions: Boys under-19: Balkar Singh (Punjab), Boys under-16: Mahesh Pai (Maharashtra).

Girls under-18: Molly Chacko (Kerala), Girls under-15: Bhagyasri (Karnataka) and Zenia Aytron of Maharashtra.

Team championship: Boys under-19: Delhi, Boys under-16: Pubjab.

Girls under-18: Kerala, Girls under-15: Karnataka.

Inter State Athletics

Ranchi, May: Bihar won overall championship - 150 points. Kerala 114 came second. Men: 1. Bihar (71), 2. Kerala (49) and Tamil Nadu (49). Women: 1. Bihar (79), 2. Kerala (65).

1990 Asiad in Beijing

The 1990 Asian Games will be held in Beijing in late September and early October.

The motto of the games will be "Unity, Friendship and Progress" the organising committee said after its first meeting in Beijing in April, 1987.

The official Xinhua news agency said the dates, emblem and mascot of the games were discussed at the meeting.

Twenty-one events had been finalised and three more would be submitted to the Olympic Council of Asia for approval.

The approved events are soccer, basketball, volleyball, table-tennis, badminton, tennis, handball, field hockey, baseball, track and field, swimming, gymnastics, weightlifting, shooting, archery, fencing, judo, wrestling, cycling, rowing and yachting.

Sixteen new sports facilities would be built and 11 existing ones updated for the games.

BADMINTON

World Badminton

Beijing May 1987: China's Yang Yang beat Denmark's Morten Frost Hansen 15−2, 13−15, 15−12 in men's final and China's Han Aiping beat compatriot Lei Lingway 10−12, 11−4, 11−7 in women's final.

National: Jammu, February 1987: Railways beat Maharashtra in the men's final and Maharashtra beat Railways in the women's final.

Men's singles: Syed Modi retained the title beating Harjeet Singh 15-4, 15-12.

Women's Singles: Madhumita Bisth beat Ami Ghia 11-5, 11-4.

BILLIARDS

Billiards and Snooker Nationals: Pune, January 1987: Geet Sethi completed a double when he retained the national billiards title beating Subash Agarwal (1821-1477) and defeated Yousuf Mirza, five frames to four, in snooker.

CRICKET

The Reliance World Cup

Jointly held by India and Pakistan and sponsored by the Reliance Industries Ltd. of India, the fourth World Cup Cricket Championship was won by Australia under Allan Border's captaincy. In the final at Eden Gardens, Calcutta, they beat England by seven runs.

In the first semifinal at Lahore, Australia beat Pakistan by 18 runs. England beat defending champion India in the second semifinal at Bombay by 35 runs.

First semi: Pakistan vs. Australia

Lahore, Nov. 4

Australia: G. Marsh (run out) 31; D. Boon st Miandad b Malik 65; D. Jones b Tauseef 38; A. Border (run out) 18; M. Veletta b Imran 48; S. Waugh (not out) 32; S. O'Donnell (run out) 0; G. Dyer b Imran 0; C. McDermott b Imran 1; T. May (not out) 0; Extras (lb 19, b 1, w 13, nb 1) 34: Total (eight wkts in 50 overs) 267.

1991 World Cup

Australia and New Zealand are considering the possibility of staging the 1991 Cricket World Cup in both countries.

Australian Cricket Board chief executive David Richards said the two countries were conducting a feasibility study on the idea and would not make a final decision for some months.

"We've only just started scratching the surface on the practicality of it and it will be early 1988 before we come to a conclusion on whether to proceed in a detailed fashion," he said.

Richards said the two countries had been talking about the idea before the World Cup, staged in India and Pakistan, which Australia won.

He acknowledged that the success of the two-country experiment in the Indian sub-continent had lent weight to the Australian plans.

But he said the chief reason for trying to stage the event in two countries rather than solely in Australia was concern at the large number of games − 27.

"We feel we would get a better result for world cricket with New Zealand than on our own," Richards said.

He said he had heard reports that India and Pakistan, and England, were thinking of also bidding for the Cup when the matter is discussed at a meeting of the International Cricket Conference in July.

Fall of wickets: 1-73, 2-155, 3-155, 4-215, 5-236, 6-236, 7-241, 8-249.

Pakistan bowling: Imran 10-1-36-3; Jaffer 6-0-57-0; Akram 10-0-54-0; Qadir 10-0-39-0; Tauseef 10-1-39-1; Malik 4-0-22-1.

Pakistan: Mansoor Akhtar b McDermott 9; Rameez Raja (run out) 1; Salim Malik c McDermott b Waugh 25; Javed Miandad b Reid 70; Imran Khan c Dyer b Border 58; Wasim Akram b McDermott 20; Ejaz Ahmed c Jones b Reid 8; Salim Yousuf c Dyer b McDermott 21; Abdul Qadir (not out) 20; Salim Jaffer c Dyer b McDermott 0; Tauseef Ahmed c Dyer b McDermott 1; Extras (lb 6, w 10) 16; Total (all out in 49 overs) 249.

Fall of wickets: 1-2, 2-37, 3-38, 4-150, 5-177, 6-192, 7-212, 8-236, 9-247.

Australian bowling: McDermott 10-0-44-5; Reid 10-2-41-2; Waugh 9-1-51-1; O'Donnell 10-1-45-0; May 6-0-36-0; Border 4-0-26-1.

Man of the match: Craig McDermott.

Second semi: India vs England

Bombay, Nov. 5:

The scores:

England: G. A. Gooch c Srikkanth b Maninder 115; R. T. Robinson st More b Maninder 13; C. W. J. Athey c More b Sharma 4; M. W. Gatting b Maninder 56; A. J. Lamb (not out) 32; J. E. Emburey lbw b Kapil Dev 6; P. A. J. DeFreitas b Kapil Dev 7; P. R. Downton (not out) 1; Extas (b 1, lb 18, w 1) 20; Total (six wkts in 50 overs) 254.

Fall of wickets: 1-40, 2-79, 3-196, 4-203, 5-219, 6-231.

Indian bowling: Kapil Dev 10-1-38-2; Prabhakar 9-1-40-0; Maninder Singh 10-0-54-3; Sharma 9-0-41-1; Azharuddin 2-0-13-0, Shastri 10-0-49-0.

India: K. Srikkanth b Foster 31; S. M. Gavaskar b DeFreitas 4; N. S. Sidhu c Athey b Foster 22; M. Azharuddin lbw b Hemmings 64; C. Pandi lbw Foster 24; Kapil Dev c Gatting b Hemmings 30; R. J. Shastri c Downton b Hemmings 21; K. S. More c and b Emburey 0; M. Prabhakar c Downton b Small 4; C. J. Sharma c Lamb b Hemmings 0; Maninder Singh (not out) 0; Extras (b 1, lb 9, w 6, nb 3) 19; Total (all out in 45.3 overs) 219.

Fall of wickets: 1-7, 2-58, 3-73, 4-121, 5-168, 6-204, 7-205, 8-218, 9-219.

England bowling: DeFreitas 7-0-37-1; Small 6-0-22-1; Emburey 10-1-35-1; Foster 10-0-47-3; Hemmings 9.3-1-52-4; Gooch 3-0-16-0.

Man of the Match: G. A. Gooch.

Final: England vs Australia

Calcutta, Nov. 8:

The scores:

Australia: G. Marsh b Foster 24; D. Boon c Downton b Hemmings 75; D. Jones c Athey b Hemmings 33; C. McDermott b Gooch 14; A. Border (run out) 31; M. Veletta (not out) 45; S. Waugh (not out) 5; Extras (b 1, lb 13, w 5, nb 7) 26; Total (five wkts. in 50 overs) 253.

Fall of wickets: 1-75, 2-151, 3-166, 4-168, 5-241.

England bowling: DeFreitas 6-1-34-0; Small

The Khan Retires

The cricket in the sub-continent bids adieu to one of the greatest all rounders of modern times—Imran Khan Niazi. Imran was to Pakistan what Gavaskar was to India. They needed him and he was there. They didn't want to lose him, but he chose to call it a day.

Pakistan cricket has never reached such heights before. It was Imran's leadership quality and his ability to lead them from the front, setting personal examples that gave the country's cricket its new found life. It was a dream run for Pakistan when Imran took them to victories against India in India and against England in England. But the dream was shattered when Imran failed to achieve the golden hatrick with a world cup victory.

The Lahore semifinal was his last appearance on the field. He failed. Such an irony in his greatness is nothing but the way of the nature.

One of the world's best swing bowlers, Imran joined the '300 club' in England in 1987. His average of just a shade over 22 runs per wicket is surpassed only by Denis Lillee of Australia and Ricahard Hadlee of New Zealand.

Reliance World Cup Final group points

The following is the position of the teams at the conclusion of the league phase of the Reliance Cup cricket tournament.

Group A

	M	*W*	*L*	*R*	*O*	*R.R.*	*P*
India	6	5	1	1364	252.0	5.41	20
Australia	6	5	1	1454	280.0	5.19	20
New Zealand	6	2	4	1357	277.4	4.88	8
Zimbabwe	6	0	6	1127	300.0	3.76	0

Group B

	M	*W*	*L*	*R*	*O*	*R.R.*	*P*
Pakistan	6	5	1	1497	299.0	5.01	20
England	6	4	2	1495	292.0	5.12	16
West Indies	6	3	3	1548	300.0	5.16	12
Sri Lanka	6	0	6	1192	295.0	4.04	0

M-Matches played. W-Won. L-Lost. R. Runs. R.R.-Run rate. P-Points.

6-0-33-0: Foster 10-0-38-1: Hemmings 10-1-48-2: Emburey 10-0-44-0: Gooch 8-1-42-1.

England: G. Gooch lbw b O'Donnell 35: T. Robinson lbw b McDermott 0: B. Athey (run out) 58: M. Gatting c Dyer b Border 41: A. Lamb b Waugh 45: P. Downton c O'Donnell b Border 9; J. Emburey (run out) 10: P. DeFreitas c Reid b Waugh 17; N. Foster (not out) 7; G. Small (not out) 3; Extras (b 1, lb 14, w 2, nb 4) 21: Total (for eight wkts. in 50 overs) 246.

Fall of wickets: 1-1, 2-66, 3-135, 4-170, 5-188, 6-218, 7-220, 8-235.

Australian bowling: McDermott 10-1-51-1; Reid 10-0-43-0; Waugh 9-0-37-2; O'Donnell

India in Test Cricket

			Played	Won	Lost	Drawn	Tie
Against	West Indies	:	54	5	22	27	—
	England	:	75	11	30	34	—
	Australia	:	45	8	20	16	1
	New Zealand	:	25	10	4	11	—
	Pakistan	:	40	7	4	29	—
	Sri Lanka	:	7	2	1	4	

India in one-days

			Matches	Won	Lost	No Results
Against	West Indies	:	14	3	11	—
	England	:	19	7	12	—
	Australia	:	29	11	16	2
	New Zealand	:	20	9	11	—
	Pakistan	:	26	10	15	1
	Sri Lanka	:	15	11	3	1
	Zimbabwe	:	4	4	—	—

His Style Is his Message

All good things must come to an end. The best thing that has ever happened to Indian cricket came to an end on November 5, 1987 at Bombay. Mission accomplished, the hero rode into sunset.

It was inevitable that Sunil Gavaskar would one day unbuckle his leg-guards, for good. Nevertheless, the cricketing world, India in particular, heaves a sigh of pain. Such true genius does not come that often.

Sunil Gavaskar is not merely 10,122 runs and 34 centuries. At a time when the world of cricket tends to forget the truth that discipline is an integral part of excellence, here was a man who was the embodiment of this classic quality. Gavaskar the cricketer was discipline, determination and excellence — the genius.

The 'Sunny days' lasted 17 years. In 125 tests, facing the fastest of world's bowlers at their fierce best, Gavaskar broke almost all possible records in modern cricket. There are critics who blame him for over possessiveness of individual land marks. But what Indian cricket achieved through him is his answer.

However, his personal records are very much there to let the world gape wonderstruck. Highest number of test appearances: 125. Highest individual total: 10,122 runs. Highest number of centuries: 34. Highest number of half centuries: 45. The only player to score 5000 runs while playing abroad. And many more.

The century at Lords during the M.C.C. bicentenary test and the century at Nagpur in the Reliance World Cup completed his last two desires. Don Bradman, the greatest found his heir apparent in no one other than this Little Master. The Indian team is now Gavaskarless. His style is his message.

10-1-35-1; May 4-0-27-0; Border 7-0-38-2.

Man of the Match: David Boon.

Pakistan in India

January to March 1987

The series included five tests and six oneday internationals. After four dreary draws, the fifth and the last test at *Bangalore* suddenly turned sensational. Pakistan won by 17 runs. First series win (1-0) for Pakistan in India. Bangalore also saw *Sunil Gavaskar's* last test appearance in India.

Scores: Pakistan: 116 and 249; India: 145 and 204.

Pakistan also won the one-day series 5-1. At Hyderabad, both the terms scored 212. But India won by the loss of lesser wickets. (India 212 for six, Pakistan 212 for seven).

Sri Lanka in India

December 86-January 1987

Sri Lanka played three tests and five one-day internationals. *India* won both the series 3-0 and 3-1 respectively. Sri Lanka achieved a thrilling victory in the first one-day at Kanpur, by 117 runs. Scores: Sri Lanka - 195-8 in 46 overs. India 78 all out in 24.1 overs. During the third test at Cuttack, *Kapil Dev* clean bowled Rumesh Ratnayake and completed 300 wickets in test cricket.

Ranji Trophy

National Cricket Championship is being conducted since the last 51 years for Ranj Trophy. Kumar Shri Ranjit Singhji, (1872-1933

Jamsaheb of Nawanagar, Gujarat, was a wizard of the willow game. Nicknamed Run-get-Singji, in England in 1900 he amassed 3065 runs (average 87.57). His total was 24,567 runs, (average 45) and he scored 72 centuries. He played for England against Australia and scored a century on debut inspiring many including his nephew Duleep Singhji, who also scored a test hundred on debut.

Ranji Trophy Winners: 1935 and 36 Bombay, 37 Nawanagar, 38 Hyderabad, 39 Bengal, 40 & 41 Maharashtra, 42 Bombay, 43 Baroda, 44 W. India, 45 Bombay, 46 Holkar, 47 Baroda, 48 Holkar, 49 Bombay, 50 Baroda, 51 Holkar, 52 Bombay, 53 Holkar, 54 Bombay, 55 Madras, 56 & 57 Bombay, 58 Baroda, 59-73 Bombay, 74 Karnataka, 75-77 Bombay, 78 Karnataka, 79 & 80 Delhi, 81 Bombay, 82 Delhi, 83 Karnataka, 84 & 85 Bombay, 86 Delhi, 87 Hyderabad.

Hyderabad beat defending champion Delhi in the final and won the national cricket crown after 49 years.

Scores: Hyderabad-457, 480 for 7; Delhi-433.

Irani Trophy

Hyderabad, November: Ranji trophy champions Hyderabad won the Irani trophy by virtue of its first innings lead over Rest of India. Scores: Hyderabad-405 and 255 for 6; Rest of India - 378.

Duleep Trophy

Bhilai, Oct. North Zone regained the Duleep Trophy by virtue of first innings lead over West Zone. Scores: West Zone 444, 230 for 5; North Zone: 868.

Deodhar Trophy

North Zone retained the title with a seven-wicket victory over West Zone. Scores: West Zone: 221 for seven in 50 overs; North Zone: 223 for 3 in 45.2 overs.

FOOTBALL

World Cup-'86: Mexico: Argentina became world champions beating West Germany 3-2

World Cup - so far

1930	Uruguay 4	Argentina	2
1934	Italy 2	Czechoslovakia	1
1938	Italy 4	Hungary	2
1942	No matches held		
1946	No matches held		
1950	Uruguay 2	Brazil	1
1954	W.Germany 3	Hungary	2
1958	Brazil 5	Sweden	2
1962	Brazil 3	Czechoslovakia	1
1966	England 4	W. Germany	2
1970	Brazil 4	Italy	1
1974	W.Germany 2	Poland	1
1978	Argentina 3	Holland	1
1982	Italy 3	W. Germany	1
1986	Argentina 3	W. Germany	2

The 1990 World Cup is to be held in Rome, Italy.

Junior World Cup-'87

Yugoslavia beat West Germany in the final to become junior world champions.

Veterans World Cup-'87

Sao Polo, January 1987: Argentina beat Brazil 1-0 and became the veterans world champions.

Olympics:

Los Angeles-'84: France won the gold, beating Brazil 2-0. Bronze for Yugoslavia.

Asian Games

Seoul '86: South Korea beat Saudi Arabia 2-1. Kuwait won bronze.

Nehru Gold Cup '87

Calicut, February: Soviet Union won the cup for the third straight year. They beat Bulgaria 2-0 in the finals.

European Cup

Vienna, May 1987: Portugal's Porto Football Club won the European cup beating Beayern Munich, West Germany 2–1.

South American Cup

Buenos Aires, July 1987: Uruguay retained the cup beating Chile 1–0 in the final.

Federation Cup

Cuttack, May 1987: Mohan Bagan, Calcutta won the Federation Cup for the sixth time, beating Salgoakar, Goa 2–0 in the final.

Santosh Trophy National Football '87

Calcutta, April: After a gap of three years, Bengal regained the national title, beating Railways 1-0. Amit Bhadra was the scorer.

SANTOSH TROPHY

Year	Winners	Runners-up	Venue
1941	Bengal	Delhi	Calcutta
1942-43		Not held	—

1944	Delhi	Bengal	Delhi
1945	Bengal	Bombay	Bombay
1946	Mysore	Bengal	Bangalore
1947	Bengal	Bombay	Calcutta
1948		Not held	—
1949	Bengal	Hyderabad	Calcutta
1950	Bengal	Hyderabad	Calcutta
1951	Bengal	Bombay	Bombay
1952	Mysore	Bengal	Bangalore
1953	Bengal	Mysore	Calcutta
1954	Bombay	Services	Madras
1955	Bengal	Mysore	Ernakulam
1956	Hyderabad	Bombay	Trivandrum
1957	Hyderabad	Bombay	Hyderabad
1958	Bengal	Services	Madras
1959	Bengal	Bombay	Nowgong
1960	Services	Bengal	Calicut
1961	Railways	Maharashtra	Bombay
1962	Bengal	Mysore	Bangalore
1963	Maharashtra	Andhra	Madras
1964	Railways	Bengal	Gauhati
1965	Andhra	Bengal	Quilon
1966	Railways	Services	Hyderabad
1967	Mysore	Bengal	Calcutta
1968	Mysore	Bengal	Bangalore
1969	Bengal	Services	Nowgong
1970	Punjab	Mysore	Madras
1971	Bengal	Railways	Madras
1972	Bengal	Tamil Nadu	Panaji
1973	Kerala	Railways	Cochin
1974	Punjab	Bengal	Jullundur
1975	Bengal	Karnataka	Calicut
1976	Bengal	Maharashtra	Patna
1977	Bengal	Punjab	Calcutta
1978	Bengal	Goa	Srinagar
1979	Bengal	Punjab	Coimbatore
1980	Punjab	Railways	Cuttack
1981-82	Bengal	Railways	Trichur
1983	Bengal	Goa	Calcutta
1984	Goa	Punjab	Madras
1985	Punjab	Maharashtra	Kanpur
1986	Punjab	Bengal	Jabalpur
1987	Bengal	Railways	Calcutta

Vittal Trophy '87: Madras: Malaysian Indian Sports Association, Kuala Lumpur retained Vittal Trophy for one more year, scoring an 1-0 win over Reserve Bank in the final.

HOCKEY

World Cup '86

London: Australia won the cup. 2. England 3. West Germany.

Olympics '84

Los Angeles: Pakistan won gold beating West Germany 2–1. Bronze: Britain.

Asian Games '86

Seoul: Gold: South Korea. Silver: Pakistan. Bronze: India.

The Champion of The Grey-matter

Champions need not always come from the 'physical' world only. Viswanathan Anand, the 17 year old handsome lad from Tamil Nadu proved this point by winning the great battle of 'grey-matter' in Baguio city, Philippines. By winning the world junior chess title, Andand proved that he owns one of the sharpest young brains in the world today.

Anand gave India a world title in a field where only the Soviets and Americans fight each other for supremacy. Till Anand came along, India could only claim to be land where chess was bron.

Anand learnt the tricks of the game in Philippines where he spent a few years with his father, a senior official in the Indian Railways, who was there on deputation. He returned to India and won all the national titles and gained international attention in the Asian championship.

The champion is one of the fastest movers on the chessboard. They come breathtakingly fast. Even the Soviets who are the wizards, have commended Anand's sharp and quick reflexes.

The field in the last world junior championship was perhaps the strongest ever, with two Grandmasters and 12 International Masters. By winning the field, Anand is halfway to becoming a Grandmaster, an achievement no other Indian has claimed so far.

Champions Cup Hockey

Amstelveen, June: West Germany retained the Champions Cup. They beat Soviet Union 5−2 in the last of the round robin matches. Hosts Netherlands came second. They beat world champions Australia 2−1 in their last match.

Indira Gandhi Gold Cup Hockey

New Delhi, January 1987: *Men:* Netherlands beat India 2−0 in the final. Spain came second and India third.

Women: Soviet Union beat India 4−2 to lift the cup. Both the teams were joint defending champions.

National Women's Hockey '87

New Delhi Sept. 27, 1927: Railways won the championship, eighth time in a row beating Air India 3−0.

TENNIS

Wimbledon

Australia's *Pat Cash* defeated world number one Ivan Lendl 7-6, 6-2, 7-5 to win the men's singles title.

Martina Navratilova equalled Helen Wells Roody's record when she won her eighth women's singles crown. She beat Steffi Graff of West Germany 7-5, 6-3.

Women's doubles: Claudia Khode-Kilsch of W. Germany and Helena Sukova of Czechoslovakia bt Betty Gahelson of US and Elizabeth Smylie of Australia 7-5, 7.6.

Men's doubles: Ken Flach and Robert Seguso, the U.S. pair bt Emilio Sanches and Sergio Casals, the Spanish pair.

Davis Cup

Sydney, October 4 1987: India bt defending champion Australia 3-2 to enter the final of the Davis cup tennis championship for the third time. The Indian team comprised Vijay Amritraj, Ramesh Krishnan, Anand Amritraj and S. Vasudevan. The Australian team included Wally Masur, John Fitzgerald, Pat Cash and Peter Doohan. Neale Fraser was the non-playing captain.

Scores: Singles: Ramesh beat Fitzgerald 6-1, 6-2, 3-6, 8-6. Vijay beat Wally Masur 1-6, 6-3, 12-10, 6-4.

Doubles: Pat Cash and Peter Doohan beat Anand and Vasudevan 6-3, 6-4, 6-4

Reverse Singles: Fitzgerald beat Vijay 7-5, 6-3, 6-3. Ramesh beat Wally Masur 8-6, 6-4, 6-4

The Channel Conquered

Anita Sood, the former national swimming champion created sporting history for India when she conquered the English channel in an Asian best of 8 hours and 15 minutes. On August 17, 1987 Anita Swam from Shakespeare Beach to Cape Gris Nez on France's western coastline, knocking 27 minutes off the earlier record held by her Otter Club Poolmate, Bejoy Jain.

With this incredible performance she surged ahead of not only the best female swimmers of Asia, but also the best distance male champions. The world record, however, belongs to Penny Lee Dean of United States who crossed the channel in 7 hrs 40 minutes (1978).

In the past 111 years, about 400 swimmers have conquered the channel.

Anita's achievement becomes all the more creditable for the fact that she did it in one of Europe's coldest summers. During long hours of workouts at Dover harbour, she used to shiver violently. But she overcame all such pressures and hung on and won.

Sweden beat Spain in the other semi at Barcelona.

Scores: Singles: Mats Wilander beat Emilio Sanches 8-6, 3-6, 6-0, 6-2. Stefan Edberg beat Javier Sanches 6-4, 6-2, 6-4.

Doubles: Sergio Casal and Emilio Sanches beat Wilander and Anders Jarryd 6-0, 6-3, 2-6, 6-4.

Reverse Singles: Edberg beat Emilio Sanches 6-4, 8-6, 6-4.

Table Tennis

National Table Tennis Championship: New Delhi, January 1987: *Maharashtra* beat Delhi (5-4) and *Petroleum Sports Control Board* beat Maharashtra 'A' (3-1) to claim the men's and women's team titles respectively. Kamalesh Mehta beat S. Sriram 21-9, 22-20, 21-5 to win the men's singles and Varsha Chulani beat Niyati Roy 13-21, 22-20, 20-22, 21-14 to win the women's singles.

VOLLEY BALL

Federation Cup

Bombay, January 1987: U.P. beat Services 14—16, 15—4, 15—7, 13—15, 15—4 in the last match.

WEIGHT LIFTING

National Championship

National Weightlifting Championship Cochin January 1987: Services won the team championship with 424 points. Railways came second (409) and Tamil Nadu, third (328).

Tamil Nadu won the *interstate team title* - 134 points. Second: West Bengal (98).

N. K. Baroga of Railways was adjudged *best lifter*.

MISCELLANEOUS

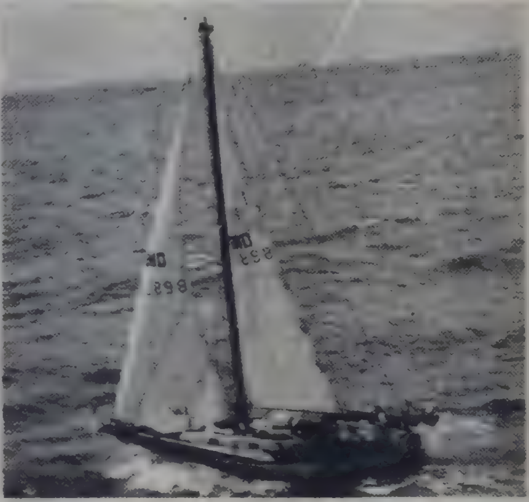
Himalayan Car Rally

New Delhi, Nov. 1987: Japanese Kenjiro Shinozuka won the eighth Himalayan Car Rally. He drove a Mitsubishi starion. Ross Dunkerton of Australia came second. Four time winner Jayant Shah of Kenya finished third.

Dragon Boat Race, Singapore

1. Singapore, 2. Thailand, 3. India.

'Trishna' Fulfilled



Crossing the waves around the world, 'Trishna' (meaning 'Thirst') came back with flying colours. The Sappers — Indian Army Engineers — sailed around the world in a yacht 'Trishna'.

'Trishna' skippered by Lt. Col. K.S. Rao set sail for their 55000 km odyssey on Sept. 28, 1985 from Bombay. They came back to a grand welcome on January 10, 1987. They crossed the equator thrice.

They sailed from Bombay to Male, and then on to Mauritius before going around the Cape of Good Hope to the island of St. Helena.

Crossing the equator for the second time, northwards they sailed into the Port of Balem in Brazil and up the Caribbean Sea, through the Panama Canal to the South Atlantic towards Galapagos Islands.

Crossing the equator once again, they headed for the Polynesian Islands. After halts at Jakarta and Singapore, they came to Colomb, via Nicobar and then, back to home land and fame.

The round-the-world odyssey was organised by the Sapper foundation.

Indira Gandhi Memorial Boat Race

Cochin: (snakeboats) 1. Karichal of Kainakary Village Sports Club. 2. Jawahar Thayankari, 3. Nadubhagom.

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COVER FEATURE

SEOUL OLYMPICS: THE GOLD RUSH

> ***"The Olympic movement tends to gather in radiant splendor, all the principles that work toward man's perfection"***
> *– Baron Pierre de Coubertin*

No man is perfect. But what sets him apart from his faunic counterpart is his conscious effort to achieve perfection. Has this quest found the goal. Not really. May be it is Mother Nature's will that nothing else shall be perfect. If so, is not perfection an illusion?

But, like Milton sang: "All is not lost, the unconquerable Will.....", the search goes on. The Olympics is the ultimate manifestation of this search.

There was a time when we used to console outselves by saying that sports is the field where we forget our mutual hatred, where competition is healthy and the all pervading atmosphere is that of comraderie. But how paradoxical it is when we realise that the very birth of Olympics was closely related to military events. War was a way of life in ancient Greece and the games at the Olympia was held only to get a breathing time, to let the wounds heal.

The first Olympics in 776 B.C. was a one day event. The race of the stadium — running from one end to the other — was the only event. Times have changed. Olympics has now become the biggest show on earth, a multimillion extravaganza. But that 'breathing-time' aspect has not changed. We need the Olympics. We need respite from arms negotiations!

And thus comes the year of 1988. It's time for the 24th Olympiad, the once-in-four-years super show. That is exactly what it is going to be. Did you not watch the closing ceremonies of the Los Angeles Olympics, on T.V.? Watch out for Seoul. The show is going to be bigger.

Who ever suggested politics must be kept apart from sports must have been joking. For, politics has become almost an intergral part of sports. Modern olympics has witnessed boycotts and counter boycotts, more than once. The very existence of the Olympic movement was put to test. But it survives.

The dark, threatening clouds of boycott are once again casting shadows over the horizon of Seoul. When *Los Angeles* bid adieu to the 23rd games and Seoul put up the welcome banner, the first salvo of the threat of boycott was heard. North Korea wanted a share of the events which was originally fully given to South Koream. When the Eastern Bloc countries stood ready with Pyongyang for a boycott, sharing became inevitable. Even then, the number of events to be shared, raised a controversy. The International Olympic Committee has been unsuccessful to bring about a final decision on this till December 31, 1987.

Governments can prove their macho by threats and boycotts. They don't lose anything. It is the athlete, the competitor, the real hero of the games, who stands to lose. Ask *Edwin Moses*. He was fored to sit back at home when in Moscow V. Beck of GDR won the 400 m hurdles gold which should have been his.

Forget the 'not-winning-but-paricipating' part. For any athlete an Olympic gold is the ultimate aim. *Alfred Oerter* who won discuss gold in four successive Olympics, each with new records, said in Mexico in 1968: *"These are Olympics. You die for them"*. That's the sprint.

The year of 1988 thus becomes very special. Not merely because this is a Leap Year. It is going to be a gigantic leaping year for the world's athletes. February gains an additional day and the world's best men and women stand to gain 237 Olympic gold medals. And so, its September, and not February, which is going to be the month of the year.

Olympics is coming to the East after 24 years. Last time, it was *Tokyo* in 1964. For colour and competition, Seoul has promised an eye-full. From what one saw at the Asiad, it is obvious that Seoul will keep her promise.

It is not always that a city gets a chance to do a full workout before staging an event like the Olympics. Seoul was lucky to have the last Asiad. They did it as a rehearsal and showed the world that technological and organisational brilliance is no one's monopoly.

The official 500-day countdown began on May-6, 1987. The games is to begin on September 17 and it will be curtains on October 2nd. The Seoul Olympic Organising Committee, with *Park Se Jik* as its president, has never lost its smile in organisational matters.

To bring the games as close to perfection as possible, preparations are stepped up to welcome 13,000 athletes and officials.

The participation will be in 23 official sports, two demostration sports and two exhibition sports. This is some kind of a record. 237 gold medals are at stake.

An additional attraction would be *Tennis*. Even though it is not a new entrant, it is for the first time that professional stars like *Boris Becker* and *Martina Navratilova* are allowed to compete. This only shows the changing attitude of the I.O.C. which usually holds to heart the status of amateur stars.

Even when the 'sharing controversy' goes on, the athletes are getting keyed up for the show. As it is always, the show stealer would be the track and field competitions. It is not undermining other events. But when it comes to individual brilliance in a field where it takes only split seconds from agony to ecstacy, track and field events have a special charm.

At Los Angeles, four years ago, America had topped the medal table with 83 gold, 61 silver and 30 bronze. Surprisingly, it was Romania, the only entrant from the Eastern Block that came second with 20—16—17. Look at the difference in the medal tally. Had the Soviets and East Germans come, would it not have been a different story? That's what boycott does to the value of competition.

But, even in their absence, Los Angeles saw the best ever track achievements in Olympics. One *Carl Lewis* was enough to rekindle the memories of the great old *Jesse Owens.* One *Mary Lou Retton* was enough to remind us of the graceful *Nadia Comaneci.*

Seoul could be a different experience, altogether. What it would be was flashed across the Olympic stadium in Rome during the world track and field meet of 1987. For the best in the world, Rome was a launching pad for Olympic glory. *Ben Johnson,* for example, hinted that he could do better at the Olympics. And, what Ben Johnson did in Rome was a world record of 9.83 seconds in 100 m sprint. If Los Angeles was Carl Lewis, Seoul could be Ben Johnson. Or will it be Edwin Moses? Or Carl himself?

There is one record which stands unconquered and haunts every one for quite a long time. That is *Bob Beamon's* leap of the century of 8.90 m in long jump (1968, Mexico). If at all anyone came near to breaking it, it was Carl Lewis. One can't forget the Russian Emmiyan too. Both of them have done around 8.80 m and Seoul could well be the previleged city to witness history rewritten.

Edwin Moses is still the 400 m hurdles' Monarch. But he is not unchallenged anymore. *Danny Harris* and *Siegfied Schmid* are in hot pursuit. Rome saw a photofinish between them. Seoul is waiting for more.

Seoul would also be watching *Daley Thompson.* The Dacathlon champ lost his world title to Voss in Rome. That was quite an upset. But Olympics has been his kingdom. There was only an American, *Bob Mathias* who had won two successive Olmpic decathlon golds (in '48 and '52). It is said that Daley had sent a postcard to Bob, before the 84 Olympics: "I am going to get you". He got him, alright. But Daley must now be on 'red-alert' for Seoul. A triple is unheard of in Olympic decathlon!

If the West was superiority in the men's

Olympics 1984, Los Angeles

Medals Table G-Gold, S-Silver, B-Bronze, T–Total

	G	S	B	T
United States	83	61	30	174
Romania	20	16	17	53
West Germany	17	19	23	59
China	15	8	9	32
Italy	14	6	9	32
Canada	10	18	16	44
Japan	10	8	14	32
New Zealand	8	1	2	11
Yugoslavia	7	4	7	18
South Korea	6	6	7	19
Britain	5	11	21	37
France	5	7	15	27
The Netherlands	5	2	6	13
Australia	4	8	12	24
Finland	4	2	6	12
Sweden	2	11	6	19
Mexico	2	3	1	6
Morocco	2	0	0	2
Brazil	1	5	2	8
Spain	1	2	2	5
Belgium	1	1	2	4
Austria	1	1	1	3
Portugal	1	0	2	3
Kenya	1	0	2	3
Pakistan	1	0	0	1
Switzerland	0	4	4	8
Denmark	0	3	3	6
Jamaica	0	1	2	3
Norway	1	2	3	6
Greece	0	1	1	2
Nigeria	0	1	1	2
Puerto Rico	0	1	1	2
Colombia	0	1	0	1
Egypt	0	1	0	1
Ivory Coast	0	1	0	1
Peru	0	1	0	1
Syria	0	1	0	1
Thailand	0	1	0	1
Ireland	0	1	0	1
Turkey	0	0	3	3
Venezuela	0	0	3	3
Algeria	0	0	2	2
Cameroon	0	0	1	1
Dominican Republic	0	0	1	1
Iceland	0	0	1	1
Chinese Taipei	0	0	1	1
Zambia	0	0	1	1

events, it is the East which rule the women's competitions. The days of *Zola Buds* and *Mary Slanleys* and *Marita Kochs* seem to be over. These are days of *Gladischs* and *Dreschlers* and Kostadinovas. The only woman world record breaker at Rome was *Stefka Kostadinova* of Bulgaria. She rewrote her own world mark in high jump.

Evelyn Ashford, the Olympic champion and the world record holder in 100 m. sprint seems to have found her heir apparent in *Silke Gladisch,* the East Germany. *Marita Koch's* world record in 200 m is under threat now that it is equalled by Heike Dreschler also of GDR (21.71 sec).

What Edwin Moses is to 400 m Hurdles is *Jackie Jooyner Kersee* to women's heptathlon. Her 7158 world record is unchallenged. She came near to breaking it in Rome. If she can better it, it would be at Seoul.

India has only very modest dreams about Seoul Olympics. There was a time when Hockey was our one and only card-trump or otherwise. But the card has lost its shine. India now relies on *P.T. Usha* for a medal. She reached one hundredth of a second away from it in Los Angeles. Can she do it in Seoul?

So, it is over to Seoul. This September is for the champions. The gigantic Olympic stadium is waiting for them. The sprawling Olympic park is ready. It took four years from the city of Hollywood glamour to the city of oriental splendor.

Even when the winner takes it all, winning is not all. To be among the fighters, is in itself great. To watch some one win is in itself, a pleasure.

If perfection is an illusion, the Olympics makes it grand.☐

THE MOVEMENT

The ancient Olympian:
Greek art-work

The modern Olympic Movement is one of the few truly heroic ventures of our times. It not only enjoys the participation and support of many famous names in many fields, but it also helps create new heroes by providing the motivation to strive for excellence and the opportunity to demonstrate that one has achieved it. It appeals to everyone, penetrating national, racial and ideological barriers and involving as many countries as the United Nations. The games have outlived their doubters and gained in popularity for almost a century now, providing that their revival is not just a passing fad.

This movement is heir to one of the world's oldest and longest lasting traditions, for the ancient Olympics began before the Golden Age of Greece and continued for more than a millennium without interruption. The various legends about the origin of the games cannot be substantiated; but it is certain that they were held at Olympia, near the northwestern coast of the Peloponnesus, about eight centuries before Christ. The games were run from early on jointly by Elis and Sparta, but eventually the Eleans had virtually complete control.

They conducted the games with stern fairness, and under them the Olympics gained greatly in importance. Competing just for the glory of achievement, winners came to be

Baron Pierre de Coubertin: the man who revived Olympics.

respected throughout the Western world. Even noblemen and royalty sought honours at Olympia, running side by side with commoners, all hoping to be awarded the coveted olive wreath. The games reached their pinnacle during the fourth and fifth centuries B.C., by which time the simple competitions and rites had evolved into a seven-day celebration of great athletic and cultural accomplishments.

The facilities of ancient Olympia were more modest than those of today. The stadium, where most of the contests were held, was about 190 m long and 32 m wide. Only judges competitors and others directly involved with the competitions were allowed inside the stadium; spectators, who may have numbered in the tens of thousands, vied for good vantage points on the hillsides all around. There were also a hippodrome for chariot races, building where the athletes could practice, treasure houses and religious structures.

In those ancient days, contestants had to be Greek freemen and were required to undergo long training. Even the judges were given special instruction for ten months before the games.

At first there was only one event in the games: a footrace of less than 200 meters. Gradualy more and more events were added until, by the 77th Olympiad, the games took five days with an additional two for religious rites.

By the fourth century of our era, the influence of politicians and the self-seeking wealthy brought corruption to the games and they were abolished by Theodosius I, emperor of Rome, in A.D. 394.

But the virtues and worthy ideals of the

The Olympic torch dates from the Games of the 11th Olympiad.

Olympics were not to be lost to us for ever. When Pierre de Coubertin, in the latter part of the nineteenth century, sought a means to produce men who were more energetic, upright, and disciplined through pedagogy, he decided that sports were a force that could revitalize liberal education. This led him to the realization that a new understanding of amateurism was needed for the youth of different nations to compete equally in sporting events, and ultimately, to the idea of reinstituting the Olympic games.

These modern games were to be true successors of the ancient Olympics, founded on high ideals and morals. To Coubertin we owe the recreation of the Olympic philosophy that the practice of amateur sports can balance spiritual values and physical faculties and play an important part in the development of both the individual and human kind in general.

The historic Congress of Paris, held at the Sorbonne in 1894, was attended by 79 delegates representing 49 organizations in France, England, the United States, Greece, Russia, Sweden, Belgium, Italy and Spain, Hungary, Germany, Bohemia, Holland and Australia sent proxies or letters. The Congress was swept by the idea of re-establishing the Olympics and set up the International Olympic Committee. In spite of all the initial difficulties, the first modern Olympic games were held in Athens in 1896, a landmark in modern history.

There have been problems along the way, but the genius of this movement spoke to the heart of modern man; and it has grown to become a powerful force for international understanding and friendship, contributing to harmony and progress that spills over beyond the bounds of amateur sport to benefit all the people of the world.

ON YOUR MARK

The first female diver jumps from the 10-meter platform, tumbles elegantly through the air and gently enters the water. Thus begins the 1988 Seoul Summer Olympic competition.

One of the main contenders for a gold medal among the female divers competing at the pool in Seoul's Olympic Park will probably be Zhou Jihong, the petite, 97-pounder who gave China its first gold medal ever in Olympic diving at the 1984 Los Angeles games. Her nation's participation in the Seoul games will show that the Olympic spirit continues to burn strong as countries around the globe compete together in Seoul.

Fifteen days later, an exhausted runner, after covering 42.195 km, will cross the finish line in the Olympic Stadium, thereby bringing the cometition to a close. Likely competitors in the marathon will be Carlos Lopes, who won the men's event at the 1984 Olympics, world champion Rob de Castella of Australia, Toshihiko Seko of Japan and world record-holder Alberto Salazar of the United States.

The filed will be wide open, however. At the 37-km mark, an obscure runner from any nation could come out of nowhere to pull off an upset or even to set a new world record. The marathon, to be run along the Han River, will begin and end at the Olympic Stadium in south-eastern Seoul.

The Seoul Olympic competition will open with a splash and will close with a grueling test of endurance. Seoul rightly can boast of having the honour to host the 1988 Olympic Games. The choice of Seoul as the host city for the 24th Olympics, made in Baden Baden on September 30, 1981 at the 84th General Assembly of the International Olympic Committee, was wonderful news for Koreans.

According to the final schedule approved in March 1987 by the International Olympic Committee and the International Sports Federation, the games will begin at 3 p.m. on September 17 with women's platform diving, following the opening ceremony, which will last three hours and 20 minutes (from 10.30 am to 1.50 pm). The Olympic competition will end with the men's marathon, scheduled to begin at 2.30 p.m on October 2, and the games will come to an official end with the closing ceremony, slated for 7 pm to 8.20 pm.

Seoul Olympic Orgnizing Committee (SLOOC) officials say that the first gold medal will be awareded in the women's air rifle event at 10 am on September 18. The final day of competition — Oct. 2, will produce the most gold medalists as the winners in 39 finals will be determined.

During the September 17 – October 2 games period, athletes will vie for 237 gold medals in 23 sports at sites in Seoul and four other cities.

In addition, there will be two demonstration sports – takewondo and baseball – and three exhibition events – bowling, badminton and women's judo.

With a gradual approach of the lighting of the Olympic torch, Seoul Olympic organizers have launched a campaign to "arouse public interest" in the games and to bring some 29,000 participants, comprising athletes, officials and journalists, from the 167 member nations of the International Olympic Committee to Seoul.

Seoul Olympics: the Programme

Opening Ceremony	Sept. 17, 1988
Archery	Sept. 27, Oct. 1
Athletics	Sept. 23–26; Sept. 28–Oct. 2
Basketball	Sept. 17–30
Boxing	Sept. 17–19; Oct. 1–2
Canoeing	Sept. 26–Oct. 1
Cycling	Sept. 18; Sept. 20–26
Equestrian	Sept. 19–28; Sept. 30; Oct. 2
Fencing	Sept. 20–24; Sept. 26–30
Football	Sept. 17–22; Sept. 25; Sept. 27; Sept. 29–Oct. 1
Gymnastics	Sept. 18–25; Sept. 28–30
Handball	Sept. 20–Oct. 1
Hockey	Sept. 18; Sept. 20–Oct. 1
Judo	Sept. 25–Oct. 1
Modern Pentathlon	Sept. 18–22
Rowing	Sept. 19–25
Shooting	Sept. 18–24
Swimming	Sept. 18–25
Diving	Sept. 17–20; Sept. 26–29
Synchronized	Sept. 26–28; Sept. 30–Oct. 1
Water Polo	Sept. 21–23; Sept. 26–27; Sept. 30–Oct. 1
Table Tennis	Sept. 23–Oct. 1
Tennis	Sept. 20–Oct. 1
Volleyball	Sept. 17–20; Sept. 22–Oct. 2
Weightlifting	Sept. 18–22; Sept. 24–29
Wrestling	Sept. 18–22; Sept. 27–Oct. 1
Yachting	Sept. 20–23; Sept. 26–28
Closing Ceremony	Oct. 2

Sports experts speculate that some gold medalists in the 1984 Los Angeles Olympics will have a tough time defending their Olympic titles against other top athletes whom they were unable to meet in previous Olympiads due to boycotts. These athletes will finally be able to prove beyond doubt their ability to go *altius, citius, fortius* which is Latin means "higher, faster, stronger".

The sacred flame for the 1988 Seoul Olympics will be ignited by the rays of the sun at the Hera Temple in Olympia, Greece, on August 23 of 1988. The Olympic flame will be carried for three days through such historic sites as Patrai, Korinthos and Athens by 380 Greek runners.

The torch transfer ceremony will take place at the Pan Athens Stadium, the venue of the First Olympic Games, at 6 pm on August 25, when the flame is formally turned over to Korean officials to begin the trip that will carry it to Seoul.

A special chartered Korean Air plane will bring the flame to the Southern Korean island of Cheju-do on August 27, via Bahrain and Bangkok, on a 29-hour flight. Upon arriving at Cheju Island, the flame will embark on a

True Grit: Seoul Is Ready

The smile lingers. Seoul smiles when she pins the flower of welcome on your lapel. The smile is that of confidence, an expression born out of a calm mind. They call Seoul the 'City of morning calm.'

I remember the sten guns too. There were too many, in and around the Seoul Sports Complex. There were people restless and angry. There were riots in the back streets. But the Asiad arena was left alone. The rioter knew that the games meant much for national pride and prestige, and that is one thing the Koreans will never give up.

Asian games was the concrete evidence South Korea's ability to achieve what they aimed at. It is an understatement to say that Asian games was success non pareil. Technically, organisationally, qualitatively the Seoul meet was the symbol of the emergence of a tiny Asian country as one of the super powers of this century.

Forget the smile. The Koreans are a serious people. True grit. Hard work. A keen sense of professionalism in everything they do. There was a time it was only Japan in the Orient. Now, there are two. The Daewoos and the Hyundais are flooding the western market. Their ship building and construction companies are among the best. Their communication and transport systems are ultra modern. And, they are very much in the field of blue chips.

Sprawling in the Han river basin, Seoul is flanked by rocky, wooded mountains. This was the capital of the Yi Dynasty. The city is 605.33 square kilometres in area. The population is about 10 million strong. The streets are wide and clean. On the newly reclaimed Youido Island in the Han river, towering above all, is the 63 storey Daehan Life Insurance Building, Korea's tallest skyscraper.

We start from Kimpo to the Seoul Sports Complex, the main venue of the 24th Olympic games. It was also the main venue of the Asiad. It is a 40 minute ride from the airport. The freeway is eight-lane wide. The sky is usually clear in September-October, the time of the games. The climate is pleasantly cool.

On the way, near the Han river you see the five storey building which housed the Main Press Centre for the Asiad. A tinge of nostalgia. Its vast computer net work which gave any information under the sun, have been dismantled for the new, improved Olympic Press Centre, elsewhere. The river embankments have been concreted and converted into huge parking lots.

Cross the river, turn left. There is the gigantic sports complex. It occupies an area of 545000 sq m. The complex was completed in 1984. The showpiece in the complex is the Olympic stadium. The $ 57 m stadium is designed in the form of a typical Yi dynasty porcelain vase. On its two tier stands, covered by a curving roof, it can accommodate upto 100,000 people. The giant video score board on the southern side gives you upto the minute information on what is happening in the stadium and at other stadia as well. The timing equipments are from Switzerland's Omega. The stadium has a medical clinic, a dining hall, a conference room, it's own *press rooms and athletes' retiring rooms. The track is laid with polyurethene. This is the venue of the track and field events.*

Adjacent to the main stadium is the warm-up stadium with its own polyurethene track. The opening and closing ceremonies also will be held at the Olympic Stadium.

The Chamshil Gymnasium for basketball can accommodate 20,000 persons. There are five practice courts inside. Adjacent to it is the Chamshil Students' Gymnasium where boxing bouts will be held. It's capacity is 7500.

Swimming competition will be held at the Chamshil Indoor Swimming pool, inside the Sports Complex and at the Olympic Park Indoor Pool. The Chamshil Pool can seat 4500 people. Swimming, diving, synchronised swimming and water polo are to be held at these two venues. The olympic park pool has a seating capacity of 10,000. Both have practice pools too.

Walk along the tree-lined avenues inside the complex. Visit the soft drinks kiosks and sit by the fountain. Have your favourite hamburger. The next stop is at the Olympic Park.

Four km towards the west lies the sprawling 2908200 sq m Olympic Park. An architectural wonder. Wooded park lands, rock gardens, wide avenues. The park includes the Olympic Village, the Press Village, a 6000 capacity veldrome and three gymnasiums with a combined capacity of 26000 for the gymnastics, fencing and weightlifting events. Also it includes an indoor swimming pool, 18 hard tennis courts and the olympic centre, the headquarters and nerve centre of the 24th Olympiad.

The 15 storey olympic centre contains conference rooms, a communication room, printing shop, show room and offices. This is from where the whole games will be controlled. The Olympic Park which has become a major tourist spot in Seoul will be the venue of cultural, scuptoral and art festivals during the olympiad.

About 10 km from the park is the Songnam Stadium, the venue of hockey matches. 25000 people can watch the game here. Football is to be held at the olympic stadium, Tongdaemun Stadium and four other provincial stadia

There is an Equestrian Park, 16 km from the village, at Kwachon, a typical Seoul suburb. The park can hold 30,000 spectators. Wondang Ranch, 40 km north of Seoul is another venue for equestrian events.

Beside the Han is the newly constructed Regatta course. 25000 people can watch the canoers and rowers in action.

The national university and the Hanyang university gymnasiums will be the sites for table tennis and volleyball matches. The rifles and pistols will come into action at the Taenung international shooting range. It's 18 km away from the olympic village.

Pusan is a coastal city, 480 km southeast of Seoul. Located on Suyong Bay here is the Pusan Yachting Centre. The centre extends over an area of 23812 sq km. There are three racing courses

The transport systems, sub ways, buses and taxis, are fawless. You miss the peak-hour traffic jams. The express way connects Seoul with suburban cities and towns.

☐ **Raghava Varma** — accredited reporter to the 10th Asian Games, Seoul

22-day northward journey to Seoul's Olympic Stadium, where it will burn from September 17 until the games close on October 2.

The relay of the Seoul Olympic flame will cover a single, winding 4,066 kilometer course over host South Korea's land, sea and air.

Greece, the host country of the ancient Games, will, by tradition, lead the parade of nations into the Olympic Stadium in the opening and closing ceremonies. It will be followed by Ghana and Gabon as the countries enter in the order of the Korean alphabet. South Korea will enter last, following the Hong Kong delegation around the stadium's oval track.

Olympic Games Venues & Dates

1.	1896	Athens	April 6–15
2.	1900	Paris	May 20-Oct. 28
3.	1904	St. Louis	July 1-Nov. 23
‡	1906	Athens	April 22-May 2
4.	1908	London	April 27-Oct. 31
5.	1912	Stockholm	May 5-July 22
6.	1916	Berlin	Not held owing to war
7.	1920	Antwerp	April 20-Sept. 12
8.	1924	Paris	May 4-July 27
9.	1928	Amsterdam	May 17-Aug. 12
10.	1932	Los Angeles	July 30-Aug. 14
11.	1936	Berlin	August 1–16
12.	1940	Tokyo, then Helsinki	Not held owning to war
13.	1944	London	Not held owing to war
14.	1948	London	July 29-Aug. 14
15.	1952	Helsinki	July 19-Aug. 3
16.	1956	Stockholm‡‡	June 10–17
		Melbourne	Nov. 22 – Dec. 8
17.	1960	Rome	Aug. 25 – Sep. 11
18.	1964	Tokyo	Oct. 10–24
19.	1968	Mexico City	Oct. 12–27
20.	1972	Munich	Aug. 26-Sep. 10
21.	1976	Montreal	July 17-Aug. 1
22.	1980	Moscow	July 19-Aug. 3
23.	1984	Los Angeles	July 28-Aug. 12
24.	1988	Seoul	Sep. 17-Oct. 2
25.	1992	Barcelona	Undecided

‡ 1906 Games held to mark the 10th Anniversary of the modern games but not numbered since it was not held in the four year sequence.

‡‡ Only the Equestrian events were held here.

THE GREATEST OLYMPIANS

Jesse Owens, USA: Born in Danville on September 12, 1912 James Cleveland Owens was the son of a black sharecropper and the grandson of a slave. In the 11th Olympics in Berlin in 1936, Owens shocked the 'white Aryan Superman' Adolf Hitler by winning four golds. He won the 100 m in 10.3 sec, 200 m in 20.7 sec, long jump with 8.06 m and anchored the American 4×100 m relay quarter to the gold in a world record of 39.8 sec. Owens died in Tucson, on March 31, 1980. In 1984 a street in Berlin was named after him.

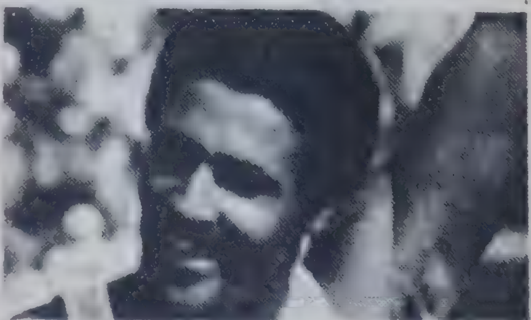
Johnny Weissmuller, USA: Born in Windber, Austria on June 2, 1904, Johnny Weissmuller was the son of an emigre coalminer. He became the first man in the world to swim the 100 metre in under one minute: he did it under 58.6 sec. In the 1924 Paris Olympics he won gold in 100 m freestyle, 400 m freestyle, 4×200 m freestyle relay and bronze in waterpolo. In the 1928 Amstardam Olympics he won gold in 100 m freestyle and 4×200 m freestyle relay. Johnny Weissemuller is better known for playing Tarzan on the screen in 11 films in 16 years. He died in Mexico on January 20, 1984.

Edwin Moses, USA: Born in Laguna Beach, California on August 31, 1955 Edwin Moses, a student of astrophysics, took to hurdling only five months before the Montreal Olympics in 1976. He won gold in Montreal in a world record of 47.64 sec. He won it in Los Angeles too. Moses is the second man in Olympic history to retain his title. Glen Davis of USA won the event in 1956 and 1960. But Moses retained his gold after a gap of eight years. Because of the American boycott, Moses missed the Moscow Olympics of 1980. Even since 1977, Moses has not lost his pet 400 m Hurdles more than twice. His German wife Myrella helps him in practice. Moses trains with micro electrodes attached to his arms, legs and trunk, connected by radio monitor to a computer. He holds the world record at 47.02 secs (Koblenz, 1983).

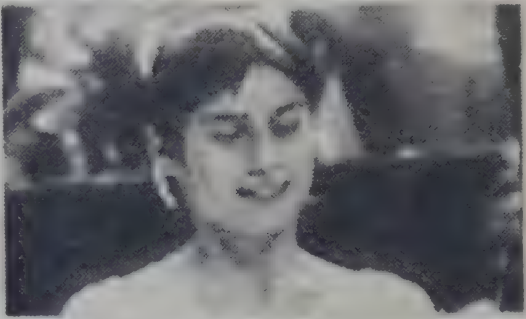
Carl Lewis, USA: Frederick Carlton Lewis was born in Texas on July 1, 1961. His parents were track coaches in Willingboro, New Jersey. The sand pit at home was his first training ground. Carl Lewis started getting national attention from 1979. At the 1981 World Cup at Rome, Lewis won long jump gold. His sprinting ability was noted in 1982. In 1983, at the Helsinki world cup, he won 3 golds and stole international lime tight. At Los Angeles Olympics in 1984 he won four golds — in 100 m, 200 m, 4×100 Realy, long jump and was acclaimed to be the successor of Jesse Owens.

Sebastian Coe, UK: Britain's super athlete was born on September 29, 1956 in London. One of world's all time greatest middle distance runners, Sebastian Coe has a natural flair for running. This was developed into a fine art by his father Peter Coe. He supervised his son's training to the minutest detail. At the Moscow Olympics, Coe lost his favourite 800 m to Steve Ovett, but won the 1500 m. This was repeated at Los Angeles. In Olympics no body else had retained 1500 m title. Coe has held world records in 800 m, 1000 m, 1500 m and the mile.

Daley Thompson, UK: Hailed as the greatest all rounder athlete in the world, Francis Daley Thompson was bron in London on July 30, 1958. Thompson was reigning world, Olympic, Commonwealth and European decathlon champion. At the World Cup in rome in 1987, he was beaten. But this loss is one of the very few in his career. The Thompson saga began at Farney Close School in 1965. His raw talent was moulded into champion stuff by Bob Mortimer. Born to a Nigerian father and Scottish Mother, Daley Thompson is the second man to win two Olympic decathlon twice – in 1980 and 84.



Nadia Comaneci, Romania: Montreal Olympics saw the advent of a gymnastic legend – Nadia Comaneci. She was born in November 1961 in Gheorghe Dej. She scored the first ever perfect 10 in gymnastics. The computerised score board was not programmed to show her score. It flashed 1.00. She won gold in combined excercised (individual) asymmetrical bars, beam, silver in combined excercises (team) and bronze in floor excercises. At the Moscow Olympics she won gold on beam, floor excercises and silver in combined excercises (team and individual). In Romania, where the state grooms sportsman, Nadia got the best of opportunities and equipments to groom her inborn talents.



Dawn Fraser, Australia: Born in Balmain, New Southwales on September 4, 1937, Dawan Fraser set an incredible 39 world records and won four gold and four silver medals in three Olympics (1956, 60 and 64). Her sensational success story spanned between 1955 and 1964. Before the '64 Tokyo Olympics, her car rammed into a parked lorry. Her mother was killed. Fraser chipped a vertebra in the neck. She had to be in plaster for six weeks. But with remarkable grit, she made it to Tokyo and won 100 m freestyle gold in record time (59.5 sec)

and silver in 4×100 freestyle relay. She is the only swimmer, male or female to win the same event (100 m freestyle) thrice in Olympics.

Alfred Oerter, USA: Oerter who won Discuss Throw gold in four successive olympics (1956, 60, 64 and 68) was born in Astoria, New York on September 19, 1936.

He made olympic debut at 20 at Melbourne (1956). With the very first throw, he broke the Olympic record (56.36 m). Before 1960, he broke the world record four times. Not only is his feat of 4 successive golds in the same event unparallelled in olympic history, but each time he also set a new olympic record. He once said: "these are the Olympics; you die for them".

Dhyan Chand, India: Born in August 1905, Dhyan Chand was the most gifted and artistic international hockey player. He lead India to Olympic gold in 1936 Berlin Olympics. India beat Germany 8–1 in the final and Dhyan Chand scored 6 goals. His olympic debut was in Amsterdam 1928. There also India won gold. In 1932 at Los Angeles India again triumphed. After the Berlin victory in '36 Hitler is said to have offered Dhyan Chand the post of Colonel in the German army if he migrated. Dhyan Chand refused. He was honoured with Padma Bhushan by the Govt. of India. He died on December 3, 1979.

Mark Spitz, USA: Born in Modesto, California in February 1950, Mark Andrew Spitz created a record by winning seven swimming gold medals in one Olympics — 1972 Munich. All the seven attempts were marked by world records. Parents Arnold and Lenore Spitz introduced Mark to swimming. On his eleventh birthday he broke 17 national junior records. In 67 Mark was nominated the World Swimmer of the year by Swimming World magazine. In '68 olympics he attempted six golds but won two (relays) one silver and one bronze.

Emil Zatopek, Czechoslovakia: Born in Koprivnice, Moravia on September 19, 1922, Emil Zatopak is known as the Czech Express. He is deservedly the true successor of Paavo Nurmy. In a 12-year career, Zatopek won 4 gold medals and one silver in the olympics and set 18 world records. Before him, in 1952, nobody ever dreamt of winning the distance treble: 5,000 m, 10,000 m and Marathons. No one else has achieved it till today. In the London Olympics of 1948 he won the gold in 10,000 m and silver in 5,000 m. In the 1952 Helzinki meet he won gold in 5,000 m, 10,000 m and Marathon.

GOLD MEDALLISTS

The following official Olympic abbreviations have been used for the names of countries.

AFG	Afghanistan
AHO	Netherlands Antilles
ALB	Albania
ALG	Algeria
ARG	Argentina
ARS	Saudi Arabia
AUS	Australia, (or Australia representing a combined team from Australia and New Zealand in the years up to and including 1912)
AUT	Austria
BAH	Bahamas
BAR	Barbados
BEL	Belgium
BER	Bermuda
BIR	Burma
BOL	Bolivia
BRA	Brazil
BUL	Bulgaria
CAF	Central Africa
CAN	Canada
CEY	Ceylon (up to 1972)
CGO	Congo Republic
CHA	Chad
CHI	Chile
CIV	Ivory Coast
CMR	Cameroon Republic
COK	Congo Kinshasa
COL	Colombia
CRC	Costa Rica
CUB	Cuba
DAH	Dahomey
DEN	Denmark
DOM	Dominican Republic
ECU	Ecuador
EGY	Egypt (or United Arab Republic)
ESP	Spain
ETH	Ethiopia
FIJ	Fiji
FIN	Finland
FRA	France
GAB	Gabon
GBR	Great Britain
GDR	German Democratic Republic 1968 on
GER	German Federal Republic (Germany until 1968)
GHA	Ghana
GRE	Greece
GUA	Guatemala
GUI	Guinea
GUY	Guyana
HAI	Haiti
HBR	British Honduras
HKG	Hong Kong
HOL	Netherlands
HON	Honduras
HUN	Hungary
INA	Indonesia
IND	India
IRN	Iran
IRQ	Iraq
IRL	Ireland
ISL	Iceland
ISR	Israel
ITA	Italy
ISV	Virgin Islands
JAM	Jamaica
JOR	Jordan
JPN	Japan
KEN	Kenya
KHM	Cambodia
KOR	South Korea
KUW	Kuwait
LBA	Libya
LBR	Liberia
LES	Lesotho
LIB	Lebanon
LIE	Liechtenstein
LUX	Luxembourg
MAD	Madagascar
MAL	Malaysia
MAR	Morocco
MAW	Malawi
MEX	Mexico
MGL	Mongolia
MLI	Mali
MLT	Malta
MON	Monaco
MRI	Mauritius
NCA	Nicaragua
NEP	Nepal
NGR	Nigeria
NIG	Niger
NOR	Norway
NZL	New Zealand
PAK	Pakistan
PAN	Panama
PAR	Paraguay
PER	Peru
PHI	Philippines
POL	Poland
POR	Portugal
PRK	North Korea
PUR	Puerto Rico
RHO	Rhodesia
ROC	Republic of China
ROM	Romania
RUS	Russia until 1917
SAL	EL Salvador
SEN	Senegal
SIN	Singapore
SLE	Sierra Leone
SMR	San Marino
SOM	Somali Republic
SRI	Sri Lanka (formerly Ceylon)
SUD	Sudan
SUI	Switzerland
SUR	Surinam
SWE	Sweden
SWZ	Swaziland
SYR	Syria
TAN	Tanzania
TCH	Czechoslovakia
THA	Thailand
TOG	Togoland
TRI	Trinidad and Tobago
TUN	Tunisia
TUR	Turkey
UAR	United Arab Republic
UGA	Uganda
URS	USSR
URU	Uruguay
USA	United States of America
VEN	Venezuela
VNM	Viet Nam
VOL	Upper Volta
YUG	Yugoslavia
ZAI	Zaire
ZAM	Zambia
ZIM	Zimbabwe

Other abbreviations for countries are:

ANT	Antilles (West Indies)
BOH	Bohemia
ENG	England
EST	Estonia
LAT	Latvia
LIT	Lithuania
RUS	(Tsarist) Russia
SAF	South Africa
SCO	Scotland

The abbreviations used in measurements follow British Standard 350. Other abbreviations used are: flts faults; pts points; nda no data available.

Approximate Metric Guide

1 metre (m)	3ft 3½ in
100m	109yd 1 ft 1 in
200m	218yd 2 ft 2 in
400m	437yd 1 ft 4 in
800m	874yd 2 ft 8 in
1,000m	1,093yd 1 ft 10 in
1,500m	1,640yd 1 ft 3 in
1609.3m	1 mile
3,000m	1 mile 1,520yd 2ft 6in
5,000m	3 miles 188yd 0ft 2in
10,000m	6 miles 376yd 0ft 4in
15km	9 miles 564yd 0ft 9in
20km	12 miles 752yd 0ft 8in
30km	18miles 1130yd 1ft 0in
50km	31miles 119yd 2ft 10in

ARCHERY (MEN)

Double Men's International Round (36 arrows each at 90, 70, 50 and 30 metres). Not held before 1972.

1972	J Williams USA	2,528 pts
1976	D. Pace USA	2,571 pts
1980	T Poikolainen FIN	2,455 pts
1984	D Pace USA	2,616 pts

ARCHERY (WOMEN)

Double Women's International Round (36 arrows each at 70, 60, 50 and 30 metres). Not held before 1972.

1972	D. Wilber USA	2,424 pts
1976	L. Ryon USA	2,499 pts
1980	K. Losaberidze URS	2,491 pts

1984	Hyang-Soon Seo KOR	2,568 pts

ASSOCIATION FOOTBALL

Not held before 1900.

1900	GBR
1904	CAN
1908	GBR
1912	GBR
1920	BEL
1924	URU
1928	URU
1932	Not held
1936	ITA
1948	SWE
1952	HUN
1956	URS
1960	YUG
1964	HUN
1968	HUN
1972	POL
1976	GDR
1980	TCH
1984	FRA

ATHLETICS (MEN)

100 Metres

1896	T. Burke USA	12.0 sec
1900	F. Jarvis USA	11.0 sec
1904	A. Hahn USA	11.0 sec
1908	R. Walker SAF	10.8 sec
1912	R. Craig USA	10.8 sec
1920	C. Paddock USA	10.8 sec
1924	H. Abrahams GBR	10.6 sec
1928	P. Williams CAN	10.8 sec
1932	E. Tolan USA	10.3 sec
1936	J. Owens USA	10.3 sec
1948	H. Dillard USA	10.3 sec
1952	L. Remigino USA	10.4 sec
1956	B. Morrow USA	10.5 sec
1960	A. Hary GER	10.2 sec
1964	R. Hayes USA	10.0 sec
1968	J. Hines USA	9.9 sec
1972	V. Borzov URS	10.14 sec
1976	H. Crawford TRI	10.06 sec
1980	A. Wells GBR	10.25 sec
1984	C. Lewis USA	9.99 sec

200 Metres

Not held before 1900

1900	J.W. Tewksbury USA	22.2 sec
1904	A. Hahn USA	21.6 sec
1908	R. Kerr CAN	22.6 sec
1912	R. Craig USA	21.7 sec
1920	A. Woodring USA	22.0 sec
1924	J. Scholz USA	21.6 sec
1928	P. Williams CAN	21.8 sec
1932	E. Tolan USA	21.2 sec
1936	J. Owens USA	20.7 sec
1948	M. Patton USA	21.2 sec
1952	A. Stanfield USA	20.7 sec
1956	B. Morrow USA	20.6 sec
1960	L. Berutti ITA	20.5 sec
1964	H. Carr USA	20.3 sec
1968	T. Smith USA	19.8 sec
1972	V. Borzov URS	20.0 sec
1976	D. Quarrie JAM	20.23 sec
1980	P. Mennea ITA	20.19 sec
1984	C. Lewis USA	19.80 sec

400 Metres

In 1908 a re-run was ordered after J.C. Carpenter USA was disqualified in the final. Halswelle was the only competitor.

1896	T. Burke USA	54.2 sec
1900	M. Long USA	49.4 sec
1904	H. Hillman USA	49.2 sec
1908	W. Halswelle GBR	50.0 sec
1912	C. Reidpath USA	48.2 sec
1920	B. Rudd SAF	49.6 sec
1924	E. Liddell GBR	47.6 sec
1928	R. Barbuti USA	47.8 sec
1932	W. Carr USA	46.2 sec
1936	A. Williams USA	46.5 sec
1948	A. Wint JAM	46.2 sec
1952	G. Rhoden JAM	45.9 sec
1956	C. Jenkins USA	46.7 sec
1960	O. Davis USA	44.9 sec
1964	M. Larrabee USA	45.1 sec
1968	L. Evans USA	43.8 sec
1972	V. Matthews USA	44.66 sec
1976	A. Juantorena CUB	44.26 sec
1980	V. Markin URS	44.60 sec
1984	A. Babers USA	44.27 sec

800 Metres

1896	E. Flack AUS	2 min 11.0 sec
1900	A. Tysoe GBR	2 min 01.2 sec
1904	J. Lightbody USA	1 min 56.0 sec
1908	M. Sheppard USA	1 min 52.8 sec
1912	J. Meredith USA	1 min 51.9 sec
1920	A. Hill GBR	1 min 53.4 sec
1924	D. Lowe GBR	1 min 52.4 sec
1928	D. Lowe GBR	1 min 51.8 sec
1932	T. Hampson GBR	1 min 49.7 sec
1936	J. Woodruff USA	1 min 52.9 sec
1948	M. Whitfield USA	1 min 49.2 sec
1952	M. Whitfield USA	1 min 49.2 sec
1956	T. Courtney USA	1 min 47.7 sec
1960	P. Snell NZL	1 min 46.3 sec
1964	P. Snell NZL	1 min 45.1 sec
1968	R. Doubell AUS	1 min 44.3 sec
1972	D. Wottle USA	1 min 45.9 sec
1976	A. Juantorena CUB	1 min 43.50 sec
1980	S. Ovett GBR	1 min 45.4 sec
1984	J. Cruz BRA	1 min 43.00 sec

1,500 Metres

1896	E. Flack AUS	4 min 33.2 sec
1900	C. Bennett GBR	4 min 06.2 sec
1904	J. Lightbody USA	4 min 05.4 sec
1908	M. Sheppard USA	4 min 03.4 sec
1912	A. Jackson GBR	3 min 56.8 sec
1920	A. Hill GBR	4 min 01.8 sec
1924	P. Nurmi FIN	3 min 53.6 sec
1928	H. Larva FIN	3 min 53.2 sec
1932	L. Beccali ITA	3 min 51.2 sec
1936	J. Lovelock NZL	3 min 47.8 sec
1948	H. Eriksson SWE	3 min 49.8 sec
1952	J. Barthel LUX	3 min 45.1 sec
1956	R. Delany IRL	3 min 41.2 sec
1960	H. Elliott AUS	3 min 35.6 sec
1964	P. Snell NZL	3 min 38.1 sec
1968	K. Keino KEN	3 min 34.9 sec
1972	P. Vasala FIN	3 min 36.3 sec
1976	J. Walker NZL	3 min 39.17 sec
1980	S. Coe GBR	3 min 38.4 sec
1984	S. Coe GBR	3 min 32.53 sec

5,000 Metres

Not held before 1912

1912	H. Kolehmainen FIN	14min 36.6sec
1920	J. Guillemot FRA	14 min 55.6 sec
1924	P. Nurmi FIN	14 min 31.2 sec
1928	V. Ritola FIN	14 min 38.0 sec
1932	L. Lehtinen FIN	14 min 30.0 sec
1936	G. Hockert FIN	14 min 22.2 sec
1948	G. Rieff BEL	14 min 17.6 sec
1952	E. Zatopek TCH	14 min 06.6 sec
1956	V. Kuts URS	13 min 39.6 sec
1960	M. Halberg NZL	13 min 43.4 sec
1964	R. Schul USA	13 min 48.8 sec
1968	M. Gammoudi TUN	14min 05.0s
1972	L. Viren FIN	13 min 26.4 sec
1976	L. Viren FIN	13 min 24.76 sec
1980	M. Yifter ETH	13 min 21.0 sec
1984	S. Aouita MAR	13 min 05.59 sec

10,000 Metres

Not held before 1912.

1912	H. Kolehmainen FIN	31 min 20.8 sec
1920	P. Nurmi FIN	31 min 45.8 sec
1924	V. Ritola FIN	30 min 23.2 sec
1928	P. Nurmi FIN	30 min 18.8 sec
1932	J. Kusocinski POL	30 min 11.4 sec
1936	I. Salminen FIN	30 min 15.4 sec
1948	E. Zatopek TCH	29 min 59.6 sec
1952	E. Zatopek TCH	29 min 17.0 sec
1956	V. Kuts URS	28 min 45.6 sec
1960	P. Bolotnikov URS	28 min 32.2 sec
1964	B. Mills USA	28 min 24.4 sec
1968	N. Temu KEN	29 min 27.4 sec
1972	L. Viren FIN	27 min 38.4 sec
1976	L. Viren FIN	27 min 40.38 sec
1980	M. Yifter ETH	27 min 42.7 sec
1984	A. Cova ITA	27 min 47.54 sec

Marathon

The standard distance of 42,195 m (26 miles 385 yd) was established in 1908 and has been retained since 1924. In other years the distance has varied.

1896	S. Louis GRE	2 hr 58 min 50.0 s
1900	M. Theato FRA	2 hr 59 min 45.0 s
1904	T. Hicks USA	3 hr 28 min 53.0 s
1908	J. Hayes USA	2 hr 55 min 18.4 s
1912	K McArthur SAF	2hr 36min 54.8s
1920	H. Colehmainen FIN	2 hr 32 min 35.8 s
1924	A. Stenroos FIN	2 hr 41 min 22.6 s
1928	M. El Ouafi FRA	2 hr 32 min 57.0 s
1932	J. Zabala ARG	2 hr 31 min 36.0 s
1936	K. Son JPN	2 hr 29 min 19.2 s
1948	D. Cabrera ARG	2hr 34min 41.6s
1952	E. Zatopek TCH	2 hr 23 min 03.2 s
1956	A. Mimoun FRA	2 hr 25 min 00.0 s
1960	A. Bikila ETH	2 hr 15 min 16.2 s
1964	A. Bikila ETH	2 hr 12 min 11.2 s
1968	M. Wolde ETH	2 hr 20 min 26.4 s
1972	F. Shorter USA	2 hr 12 min 19.8 s
1976	W. Cierpinski GDR	2 hr 09 min 55.0 s
1980	W. Cierpinski GDR	2 hr 11 min 03.0 s
1984	C. Lopes POR	2 hr 09 min 21.0 s

110 Metres Hurdles

In 1896 the distance was 100 m (109 yd 1 ft)

1896	T. Curtis USA	17.6 s
1900	A. Kraenzlein USA	15.4 s
1904	F. Schule USA	16.0 s
1908	F. Smithson USA	15.0 s

1912	F. Kelly USA	15.1 s
1920	E. Thomson CAN	14.8 s
1924	D. Kinsey USA	15.0 s
1928	S. Atkinson SAF	14.8 s
1932	G. Saling USA	14.6 s
1936	F. Towns USA	14.2 s
1948	W. Porter USA	13.9 s
1952	W.H. Dillard USA	13.7 s
1956	L. Calhoun USA	13.5 s
1960	L. Calhoun USA	13.8 s
1964	H. Jones USA	13.6 s
1968	W. Davenport USA	13.3 s
1972	R. Milburn USA	13.24 s
1976	G. Drut FRA	13.30 s
1980	T. Munkelt GDR	13.39 s
1984	R. Kingdom USA	13.20 s

400 Metres hurdles

Not held before 1900

1900	J.W. Tewksbury USA	57.6 s
1904	H. Hillman USA	53.0 s
1908	C. Bacon USA	55.0 s
1912	Not held	
1920	F. Loomis USA	54.0 s
1924	F.M. Taylor USA	52.6 s
1928	Lord Burghley GBR	53.4 s
1932	R. Tisdall IRL	51.7 s
1936	G. Hardin USA	52.4 s
1948	R. Cochran USA	51.1 s
1952	C. Moore USA	50.8 s
1956	G. Davis USA	50.1 s
1960	G. Davis USA	49.3 s
1964	R.W. Cawley USA	49.6 s
1968	D. Hemery GBR	48.1 s
1972	J. Akii-Bua UGA	47.82 s
1976	E. Moses USA	47.64 s
1980	V. Beck GDR	48.70 s
1984	E. Moses USA	47.75 s

3,000 Metres Steeplechase

Not held before 1900. In 1900 and 1904 the distance was 2,500 m, in 1908 it was 3,200 m. In 1932 the distance in the final was 3,460 m due to an error on the part of an official.

1900	G. Orton CAN	7 min 34.4 s
1904	J. Lightbody USA	7 min 39.6 s
1908	A. Russell GBR	10 min 47.8 s
1912	Not held	
1920	P. Hodge GBR	10 min 00.4 s
1924	V. Ritola FIN	9 min 33.6 s
1928	T. Loukola FIN	9 min 21.8 s
1932	V. Iso-Hollo FIN	10 min 33.4 s
1936	V. Iso-Hollo FIN	9 min 03.8 s
1948	T. Sjostrand SWE	9 min 04.6 s
1952	H.'Ashenfelter USA	8 min 45.4 s
1956	C. Brasher GBR	8 min 41.2 s
1960	Z. Krzyszkowiak POL	8 min 34.2 s
1964	G. Roelants BEL	8 min 30.8 s
1968	A. Biwott KEN	8 min 51.0 s
1972	K. Keino KEN	8 min 23.6 s
1976	A. Garderud SWE	8 min 08 02 s
1980	B. Malinowski POL	8 min 09.7 s
1984	J.,Korir KEN	8 min 11.80 sc

4×100 Metres Relay

Not held before 1912

1912	GBR	42.4 s
1920	USA	42.2 s
1924	USA	41.0 s
1928	USA	41.0 s
1932	USA	40.0 s
1936	USA	39.8 s
1948	USA	40.6 s
1952	USA	40.1 s
1956	USA	39.5 s
1960	GER	39.5 s
1964	USA	39.0 s
1968	USA	38.2 s
1972	USA	38.19 s
1976	USA	38.33 s
1980	URS	38.26 s
1984	USA	37.83 s

4×400 Metres Relay

Not held before 1912.

1912	USA	3 min 16.6 s
1920	GBR	3 min 22.2 s
1924	USA	3 min 16.0 s
1928	USA	3 min 14.2 s
1932	USA	3 min 08.2 s
1936	GBR	3 min 09.0 s
1948	USA	3 min 10.4 s
1952	JAM	3 min 03.9 s
1956	USA	3 min 04.8 s
1960	USA	3 min 02.2 s
1964	USA	3 min 00.7 s
1968	USA	2 min 56.1 s
1972	KEN	2 min 59.8 s
1976	USA	2 min 58.65 s
1980	URS	3 min 01.1 s
1984	USA	2 min 57.91 s

20 Kilometres Walk

Not held before 1956

1956	L. Spirin URS	1 hr 31 min 27.4 s
1960	V. Golubnichi URS	1 hr 34 min 07.2 s
1964	K. Matthews GBR	1 hr 29 min 34.0 s
1968	V. Golubnichi URS	1 hr 33 min 58.4 s
1972	P. Frenkel GDR	1 hr 26 min 42.4 s
1976	D. Bautista MEX	1 hr 24 min 40.6 s
1980	M. Damilano ITA	1 hr 23 min 35.5 s
1984	E. Canto MEX	1 hr 23 min 13.0 s

50 Kilometres Walk

Not held before 1932.

1932	T. Green GBR	4 hr 50 min 10.0 s
1936	H. Whitlock GBR	4hr 30min 41.1s
1948	J. Ljunggren SWE	4 hr 41 min 52.0 s
1952	G. Dordoni ITA	4 hr 28 min 07.8 s
1956	N. Read NZL	4 hr 30 min 42.8 s
1960	D. Thompson GBR	4 hr 25 min 30.0 s
1964	A. Pamich ITA	4 hr 11 min 12.4 s
1968	C. Hohne GDR	4 hr 20 min 13.6 s
1972	B. Kannenberg GER	3 hr 56 min 11.6 s
1976	Not held	
1980	H. Gauder GDR	3hr 49min 24.0 s
1984	R. Gonzalez MEX	3hr 47min 26.0s

High Jump

1896	E. Clark USA	1.81 m
1900	I. Baxter USA	1.90 m
1904	S. Jones USA	1.80 m
1908	H. Porter USA	1.90 m
1912	A. Richards USA	1.93
1920	R. Landon USA	1.94
1924	H. Osborn USA	1.98
1928	R. King USA	1.94
1932	D. McNaughton CAN	1.97
1936	C. Johnson USA	2.03
1948	J. Winter AUS	1.98
1952	W. Davis USA	2.04
1956	C. Dumas USA	2.12
1960	R. Shavlakadze URS	2.16
1964	V. Brumel URS	2.18
1968	R. Fosbury USA	2.24
1972	Y. Tarmak URS	2.23
1976	J. Wszola POL	2.25
1980	G. Wessig GDR	2.36
1984	D. Moegenburg GER	2.35

Long Jump

1896	E. Clark USA	6.35
1900	A. Kraenzlein USA	7.185
1904	M. Prinstein USA	7.34
1908	F. Irons USA	7.48
1912	A. Gutterson USA	7.60
1920	W. Pettersson SWE	7.15
1924	W.D.H. Hubbard USA	7.44
1928	E. Hamm USA	7.73
1932	E. Gordon USA	7.64
1936	J. Owens USA	8.06
1948	W. Steele USA	7.82
1952	J. Biffle USA	7.57
1956	G. Bell USA	7.83
1960	R. Boston USA	8.12
1964	L. Davies GBR	8.07
1968	R. Beamon USA	8.90
1972	R. Williams USA	8.24
1976	A. Robinson USA	8.35
1980	L. Dombrowski GDR	8.54
1984	C. Lewis USA	8.54

Triple Jump

1896	J. Connolly USA	13.71
1900	M. Prinstein USA	14.47
1904	M. Prinstein USA	14.35
1908	T. Ahearne GBR IRL	14.91
1912	G. Lindblom SWE	14.76
1920	V. Tuulos FIN	14.50
1924	A. Winter AUS	15.52
1928	M. Oda JPN	15.21
1932	C. Nambu JPN	15.72
1936	N. Tajima JPN	16.00
1948	A. Ahman SWE	15.40
1952	A.F. da Silva BRA	16.22
1956	A.F. da Silva BRA	16.35
1960	J. Szmidt POL	16.81
1964	J. Szmidt POL	16.85
1968	V. Saneev URS	17.39
1972	V. Saneev URS	17.35
1976	V. Saneev URS	17.29
1980	J. Uudmae URS	17.35
1984	A. Joyner USA	17.26

Pole Vault

1896	W. Hoyt USA	3.30
1900	I. Baxter USA	3.30
1904	C. Dvorak USA	3.50
1908	A. Gilbert USA & E. Cooke USA	3.71
1912	H. Babcock USA	3.95
1920	F. Foss USA	4.09
1924	L. Barnes USA	3.95
1928	S. Carr USA	4.20

1932	W. Miller USA	4.32 m
1936	E. Meadows USA	4.35 m
1948	O.G. Smith USA	4.30 m
1952	R. Richards USA	4.55 m
1956	R.Richards USA	4.56 m
1960	D. Bragg USA	4.70 m
1964	F. Hansen USA	5.10 m
1968	R. Seagren USA	5.40 m
1972	W. Nordwig GDR	5.50 m
1976	T. Slusarski POL	5.50 m
1980	W. Kozakiewicz POL	5.78 m
1984	P. Quinon FRA	5.75 m

Shot Put

Weight 7.257 kg (16 lb) from a circle of 2.135 m (7 ft): in 1896 and 1900 a square of 2.135 m (7 ft).

1896	R. Garrett USA	11.22 m
1900	R. Sheldon USA	14.10 m
1904	R. Rose USA	14.81 m
1908	R. Rose USA	14.21 m
1912	P. McDonald USA	15.34 m
1920	V. Porhola FIN	14.81 m
1924	C. Houser USA	14.99 m
1928	J. Kuck USA	15.87 m
1932	L. Sexton USA	16.01 m
1936	H. Wollke GER	16.20 m
1948	W. Thompson USA	17.12 m
1952	P. O'Brien USA	17.41 m
1956	P. O'Brien USA	18.57 m
1960	W. Nieder USA	19.68 m
1964	D. Long USA	20.33 m
1968	R. Matson USA	20.54 m
1972	W. Komar POL	21.18 m
1976	U. Beyer GDR	21.05 m
1980	V. Kiselyou URS	21.35 m
1984	A. Andrei ITA	21.26 m

Discus

Weight 2 kg (4 lb 6 547 oz) from a circle of 2.50 m.

1896	R. Garrett USA	29.15 m
1900	R. Bauer HUN	36.04 m
1904	M. Sheridan USA	39.28 m
1908	M. Sheridan USA	40.89 m
1912	A. Taipale FIN	45.21 m
1920	E. Niklander FIN	44.69 m
1924	C. Houser USA	46.16 m
1928	C. Houser USA	47.32 m
1932	J. Anderson USA	49.49 m
1936	K. Carpenter USA	50.48 m
1948	A. Consolini ITA	52.78 m
1952	S. Iness USA	55.03 m
1956	A. Oerter USA	56.36 m
1960	A. Oerter USA	59.18 m
1964	A. Oerter USA	61.00 m
1968	A. Oerter USA	64.78 m
1972	L. Danek TCH	64.40 m
1976	M. Wilkins USA	67.50 m
1980	V. Rasshchupkin URS	66.64 m
1984	R. Danneberg GER	66.60 m

Hammer Throw

Weight 7.257 (16 lb) from a circle of 2.135 m (7 ft): in 1900 from a 9 ft circle. Not held before 1900

1900	J. Flanagan USA	49.73 m
1904	J. Flanagan USA	51.23 m
1908	J. Flanagan USA	51.92 m
1912	M. McGrath USA	54.74 m
1920	P. Ryan USA	52.88 m
1924	F. Tootell USA	53.30 m
1928	P. O'Callaghan IRL	51.39 m
1932	P. O'Callaghan IRL	53.92 m
1936	K. Hein GER	56.49 m
1948	I. Nemeth HUN	56.07 m
1952	J. Csermak HUN	60.34 m
1956	H. Connolly USA	63.19 m
1960	V. Rudenkov URS	67.10 m
1964	R. Klim URS	69.74 m
1968	G. Zsivotzky HUN	73.36 m
1972	A. Bondarchuk URS	75.50 m
1976	Y. Sedykh URS	77.50 m
1980	Y. Sedykh URS	81.80 m
1984	J. Tiainen FIN	78.08 m

Javelin

Not held before 1908

1908	E. Lemming SWE	54.83 m
1912	E. Lemming SWE	60.64 m
1920	J. Myyra FIN	65.78 m
1924	J. Myyra FIN	62.96 m
1928	E. Lundkvist SWE	66.60 m
1932	M. Jarvinen FIN	72.71 m
1936	G. Stock GER	71.84 m
1948	T. Rautavaara FIN	69.77 m
1952	C. Young USA	73.78 m
1956	E. Danielsen NOR	85.71 m
1960	V. Tsibulenko URS	84.64 m
1964	P. Nevala FIN	82.66 m
1968	Y. Lusis URS	90.10 m
1972	K. Wolfermann GER	90.48 m
1976	M. Nemeth HUN	94.58 m
1980	D. Kula URS	91.20 m
1984	A. Haerkoenen FIN	86.76 m

Decathlon

Consists of ten events on two consecutive days; 100 metres, long jump, shot put, high jump, 400 metres on the first day; 110-metres hurdles, discus, pole vault, javelin, 1,500 metres on the second day. Not held in its present from before 1912.

1912	H. Wieslander SWE	7,724.495 pts
1920	H. Lovland NOR	6,803.355 pts
1924	H. Osborn USA	7,710.775 pts
1928	P. Yrjola FIN	8,053.290 pts
1932	J. Bausch USA	8,462.230 pts
1936	G. Morris USA.	7,900 pts
1948	R. Mathias USA	7,139 pts
1952	R. Mathias USA	7,887 pts
1956	M. Campbell USA	7,937 pts
1960	R. Johnson USA	8,392 pts
1964	W. Holdorf GER	7,887 pts
1968	B. Toomey USA	8,193 pts
1972	N. Avilov URS	8,454 pts
1976	B. Jenner USA	8,618 pts
1980	D. Thompson GBR	8,495 pts
1984	D. Thompson GBR	8,797 pts

ATHLETICS (WOMEN)

100 Metres

Not held before 1928.

1928	E. Robinson USA	12.2 s
1932	S. Walasiewicz USA	11.9 s
1936	H. Stephens USA	11.5 s
1948	F. Blankers-Koen HOL	11.9 s
1952	M. Jackson AUS	11.5 s
1956	B. Cuthbert AUS	11.5 s
1960	W. Rudolph USA	11.0 s
1964	W. Tyus USA	11.4 s
1968	W. Tyus USA	11.0 s
1972	R. Stecher GDR	11.07 s
1976	A. Richter GDR	11.08 s
1980	L. Kondratyeva URS	11.06 s
1984	E. Ashford USA	10.97 s

200 Metres

Not held before 1948.

1948	F. Blankers-Koen HOL	24.4 s
1952	M. Jackson AUS	23.7 s
1956	B. Cuthbert AUS	23.4 s
1960	W. Rudolph USA	24.0 s
1964	E. Maguire USA	23.0 s
1968	I. Szewinska-Kirszenstein POL	22.5 s
1972	R. Stecher GDR	22.40 s
1976	B. Eckert GDR	22.37 s
1980	B. Wockel GDR	22.03 s
1984	V. Brisco-Hooks USA	21.81 s

400 Metres

Not held before 1964

1964	B. Cuthbert AUS	52.0 s
1968	C. Besson FRA	52.0 s
1972	M. Zehrt GDR	51.08 s
1976	I. Szewinska-Kirszenstein POL	49.29 s
1980	M. Koch GDR	48.88 s
1984	V. Brisco-Hooks USA	48.83 s

800 Metres

Not held before 1928

1928	L. Radke GER	2 min 16.8 s
1932–1956	Not held	
1960	L. Shevtsova URS	2 min 04.3 s
1964	A. Packer GBR	2 min 01.1 s
1968	M. Manning USA	2 min 00.9 s
1972	H. Falck GER	1 min 58.6 s
1976	T. Kazankina URS	1 min 54.94 s
1980	N. Olizarenko URS	1 min 53.5 s
1984	D. Melinte ROM	1 min 57.60 s

1,500 Metres

Not held before 1972.

1972	L. Bragina URS	4 min 01.4 s
1976	T. Kazankina URS	4 min 05.48 s
1980	T. Kazankina URS	3 min 56.6 s
1984	G. Dorio ITA	4 min 03.25 s

3,000 Metres

Not held before 1984

1984	M. Puica ROM	8 min 35.96 s

Marathon

Not held before 1984.

1984	J. Benoit USA	2 hr 24 min 52 s

80 Metres Hurdles

Not held before 1932

1932	M. Didrikson USA	11.7 s
1936	T. Valla ITA	11.7 s
1948	F. Blankers-Koen HOL	11.2 s
1952	S. (Strickland) de la Hunty AUS	10.9 s
1956	S. (Strickland) de la Hunty AUS	10.7 s
1960	I. Press URS	10.8 s
1964	K. Balzer GER	10.5 s
1968	M. Caird AUS	10.3 s

In 1972 this event was changed to 100 Metres Hurdles.

100 Metres Hurdles

Not held before 1972

1972 A. Ehrhardt GDR	12.59 s
1976 J. Schaller GDR	12.77 s
1980 V. Komisova URS	12.56 s
1984 B. Fitzgerald-Brown USA	12.84 s

400 Metres Hurdles

Not held before 1984

1984 N. El Moutawakel MAR	54.61 s

4×100 Metres Relay

Not held before 1928.

1928 CAN	48.4 s
1932 USA	47.0 s
1936 USA	46.9 s
1948 HOL	47.5 s
1952 USA	45.9 s
1956 AUS	44.5 s
1960 USA	44.5 s
1964 POL	43.6 s
1968 USA	42.8 s
1972 GER	42.81 s
1976 GDR	42.55 s
1980 GDR	41.60 s
1984 USA	41.65 s

4×400 Metres Relay

Not held before 1972.

1972 GDR	3 min 23.0 s
1976 GDR	3 min 19.23 s
1980 URS	3 min 20.2 s
1984 USA	3 min 18.29 s

Pentathlon

Consists of five events on two consecutive days; 80-metres hurdles (100-metres hurdles after 1968), shot put, high jump on the first day; long jump and 200 metres on the second. Not held before 1964.

1964 I Press URS	5,246 pts
1968 I. Becker GER	5,098 pts
1972 M. Peters GBR	4,801 pts
1976 S. Siegl GDR	4,745 pts
1980 N. Tkachenko URS	5,083 pts

In 1984 this event was changed to Heptathlon.

Heptathlon

Consists of seven events on two consecutive days; 100-metres hurdles, high jump, shot put, 200 metres on the first day; long jump, Javelin and 800 metres on the second. Not held before 1984.

1984 G. Nunn AUS	6,390 pts

High Jump

Not held before 1928.

1928 E. Catherwood CAN	1.59 m
1932 J. Shiley USA	1.65 m
1936 I. Csak HUN	1.60 m
1948 A. Coachman USA	1.68 m
1952 E. Brand SAF	1.67 m
1956 M. McDaniel USA	1.76 m
1960 I. Balas ROM	1.85 m
1964 I. Balas ROM	1.90 m
1968 M. Rezkova TCH	1.82 m
1972 U. Ackerman GDR	1.93 m
1980 S. Simeoni ITA	1.97 m
1984 U. Meyfarth GER	2.02 m

Long Jump

Not held before 1948

1948 O. Gyarmati HUN	5.70 m
1952 Y. Williams NZL	6.24 m
1956 E. Krzesinska POL	6.35 m
1960 V. Krepkina URS	6.37 m
1964 M. Rand GBR	6.76 m
1968 V. Viscopoleanu ROM	6.82 m
1972 H. Rosendahl GER	6.78 m
1976 A. Voigt GDR	6.72 m
1980 T. Kolpakova URS	7.06 m
1984 A. Stanciu ROM	6.96 m

Shot Put

Weight 4 kg (8 lb 13 oz) from a circle of 2.135 m (7 ft). Not held before 1948.

1948 M. Ostermeyer FRA	13.75 m
1952 G. Zybina URS	15.28 m
1956 T. Tyshkevich URS	16.59 m
1960 T. Press URS	17.32 m
1964 T. Press URS	18.14 m
1968 M. Gummel GDR	19.61 m
1972 N. Chizhova URS	21.03 m
1976 I. Christova BUL	21.16 m
1980 I. Slupiauek GDR	22.41 m
1984 C. Losch GER	20.48 m

Discus

Weight 1 kg (2 lb 3.274 oz) from a circle of 2.50 m (8 ft 2½ in). Not held before 1928

1928 H. Konopacka POL	39.62 m
1932 L. Copeland USA	40.58 m
1936 G. Mauermayer GER	47.63 m
1948 M. Ostermeyer FRA	41.92 m
1952 N. Romashkova URS	51.42 m
1956 O. Fikotova TCH	53.69 m
1960 N. (Romashkova) Ponomareva URS	55.10 m
1964 T. Press URS	57.27 m
1968 L. Manoliu ROM	58.28 m
1972 F. Melnik URS	66.62 m
1976 E. Schlaak GDR	60.00 m
1980 E. Jahl GDR	69.96 m
1984 R. Stalman HOL	65.36 m

Javelin

Not held before 1932.

1932 M. Didrikson USA	43.68 m
1936 T. Fleischer GER	45.18 m
1948 H. Bauma AUT	45.57 m
1952 D. Zatopkova TCH	50.47 m
1956 I. Yaunzeme URS	53.86 m
1960 E. Ozolina URS	55.98 m
1964 M. Penes ROM	60.54 m
1968 A. Nemeth HUN	60.36 m
1972 R. Fuchs GDR	63.88 m
1976 R. Fuchs GDR	65.94 m
1980 M. Colon CUB	68.40 m
1984 T. Sanderson GBR	69.56 m

BASKETBALL (MEN)

Not held as a competition before 1936.

1936 USA
1948 USA
1952 USA
1956 USA
1960 USA
1964 USA
1968 USA
1972 URS
1976 USA
1980 YUG
1984 USA

BASKETBALL (WOMEN)

Not held as a competition before 197

1976 URS
1980 URS
1984 USA

BOXING

Light Flyweight

Not held before 1968. Weight limit 48 k
(105 lb 13 oz)

1968 F. Rodriguez VEN
1972 G. Gedo HUN
1976 J. Hernandez CUB
1980 S. Sabyrov URS
1984 P. Gonzales USA

Flyweight

Not held before 1904. In 1904 weigh
limit 47.6 kg (105 lb); 1920–36 50.8 k
(112 lb); from 1948 51 kg (112 lb 6 oz)

1904 G. Finnegan USA
1908–1912 Not held
1920 F. De Genaro USA
1924 F. LaBarba USA
1928 A. Kocsis HUN
1932 I. Enekes HUN
1936 W. Kaiser GER
1948 P. Perez ARG
1952 N. Brooks USA
1956 T. Spinks GBR
1960 G. Torok HUN
1964 F. Atzori ITA
1968 R. Delgado MEX
1972 G. Kostadinov BUL
1976 L. Randolph USA
1980 P. Lessov BUL
1984 S. McCrory USA

Bantamweight

Not held before 1904. In 1904 weigh
limit 52.1 kg (115 lb); 1908 52.6 kg (11
lb); 1920 53.6 kg (118 lb 2 oz); 1924–3
53.5 kg (118 lb); from 1948 54 kg (11
lb).

1904 O.L. Kirk USA
1908 H. Thomas GBR
1912 Not held
1920 C. Walker SAF
1924 W. Smith SAF
1928 V. Tamagnini ITA
1932 H. Gwynne CAN
1936 U. Sergo ITA
1948 T. Casik HUN
1952 P. Hamalainen FIN
1956 W. Behrendt GER
1960 O. Grigoriev URS
1964 T. Sakurai JPN
1968 V. Sokolov URS
1972 O. Martinez CUB
1976 Y.J. Gu PRK
1980 J. Hernandez CUB
1984 M. Stecca ITA

Featherweight

Not held before 1904. In 1904 weigh
limit 56.7 kg (125 lb); 1908–36 57.15 k
(126 lb); 1948 58 kg (127 lb 14 oz); fro

1952 57 kg (125 lb 10½ oz).
1904 O.L.Kirk USA
1908 R. Gunn GBR
1912 Not held
1920 P. Fritsch FRA
1924 J. Fields USA
1928 L. van Klaveren HOL
1932 C. Robledo ARG
1936 O. Casanovas ARG
1948 E. Formenti ITA
1952 J. Zachara TCH
1956 V. Safronov URS
1960 F. Musso ITA
1964 S. Stepashkin URS
1968 A Roldan MEX
1972 B. Kusnetsov URS
1976 A. Herrera CUB
1980 R. Fink GDR
1984 M. Taylor USA

Lightweight

Not held before 1904. In 1904 weight limit 61.2 kg (135 lb); 1908 63.5 kg (140 lb); 1920–36 61.24 kg (135 lb); 1948 62 kg (136 lb 11 oz); from 1952 60 kg (132 lb 4½ oz).

1904 H. Spanger USA
1908 F. Grace GBR
1912 Not held
1920 S. Mosberg USA
1924 H. Nielsen DEN
1928 C. Orlandi ITA
1932 L. Stevens SAF
1936 I. Harangi HUN
1948 G. Dreyer SAF
1952 A. Bolognesi ITA
1956 R. Mc Taggart GBR
1960 K. Pazdzior POL
1964 J. Grudzien POL
1968 R. Harris USA
1972 J. Szczepanski POL
1976 H. Davis USA
1980 A. Herrera CUB
1984 P. Whitaker USA

Light Welterweight

Not held before 1952. Weight limit 63.5 kg (140 lb).

1952 C. Adkins USA
1956 V. Yengibaryan URS
1960 B. Nemecek TCH
1964 J. Kulej POL
1968 J. Kulej POL
1972 R. Seales USA
1976 R. Leonard USA
1980 P. Oliva ITA
1984 J. Page USA

Welterweight

Not held before 1904. In 1904 weight limit 65.27 kg (144 lb); 1920–36 66.68 kg (147 lb): from 1968 67 kg (147 lb 11⅓ oz). In 1924 this weight category was called Light Middleweight.

1904 A. Young USA
1908–1912 Not held
1920 J. Schneider CAN
1924 J. Delarge BEL
1928 E. Morgan NZL
1932 E. Flynn USA
1936 S. Suvio FIN
1948 J. Torma TCH
1952 Z. Chychla POL
1956 N. Linca ROM
1960 G. Benvenuti ITA
1964 M. Kasprzyk POL
1968 M. Wolke GDR
1972 E. Correa CUB
1976 J. Bachfield GDR
1980 A. Aldama CUB
1984 M. Breland USA

Light Middleweight

Not held before 1952. Weight limit 71 kg (156 lb 8½ oz).

1952 L. Papp HUN
1956 L. Papp HUN
1960 W. McClure USA
1964 B. Lagutin URS
1968 B. Lagutin URS
1972 D. Kottysch GER
1976 J. Rybicki POL
1980 A. Martinez CUB
1984 F. Tate USA

Middleweight

Not held before 1904. In 1904–8 weight limit 71.67 kg (158 lb); 1920–36 72.57 kg (160 lb); 1948 73 kg (169 lb 15 oz); from 1952 75 kg (165 lb 5¾ oz).

1904 C. Mayer USA
1908 J. Douglas GBR
1912 Not held
1920 H. Mallin GBR
1924 H. Mallin GBR
1928 P. Toscani ITA
1932 C. Barth USA
1936 J. Despeaux FRA
1948 L. Papp HUN
1952 F. Patterson USA
1956 G. Shatkov URS
1960 E. Crook USA
1964 V. Popenchenko URS
1968 C. Finnegan GBR
1972 V. Lemechev URS
1976 M. Spinks USA
1980 J. Gomez CUB
1984 Joon-Sup Shin KOR

Light Heavyweight

Not held before 1920. Weight limit 1920-36 79.38 kg (175 lb); 1948 80 kg (176 lb 6 oz); from 1952 81 kg (178 lb 9 oz).

1920 E. Eagan USA
1924 H. Mitchell GBR
1928 V. Avendano ARG
1932 D. Carstens SAF
1936 R. Michelot FRA
1948 G. Hunter SAF
1952 N. Lee USA
1956 J.F. Boyd USA
1960 C. Clay USA
1964 C. Pinto ITA
1968 D. Poznyak URS
1972 M. Parlov YUG
1976 L. Spinks USA
1980 S. Kacar YUG
1984 A. Josipovic YUG

Heavyweight

Not held before 1904. In 1904–8 weight limit over 71.67 kg (158 lb); 1920–36 79.38 kg (175 lb); 1948 80 kg (176 lb 6 oz); from 1952 81 kg (178 lb 9 oz); from 1984 91 kg (200½ lb).

1904 S. Berger USA
1908 A.L. Oldham GBR
1912 Not held
1920 R. Rawson GBR
1924 O. von Porat NOR
1928 A.R. Jurado ARG
1932 S. Lovell ARG
1936 H. Runge GER
1948 R. Iglesias ARG
1952 H.E. Sanders USA
1956 T.P. Rademacher USA
1960 F. de Piccoli ITA
1964 J. Frazier USA
1968 G. Foreman USA
1972 T. Stevenson CUB
1976 T. Stevenson CUB
1980 T. Stevenson CUB
1984 H. Tillman USA

Super Heavy weight

Not held before 1984. Weight over 91 kg (202½ lb);

1984 T. Biggs USA

CANOEING (MEN)

Canadian Singles

Course 500 m (546 yd). Not held before 1976.

1976 A. Rogov URS	1 min 59.23 s
1980 S. Postrekhin URS	1 min 53.37 s
1984 L. Cain CAN	1 min 57.01 s

Course 1,000 m (1,094 yd)
Not held before 1936

1936 F. Amyot CAN	5 min 32.1 s
1948 J. Holecek TCH	5 min 42.0 s
1952 J. Holecek TCH	4 min 56.3 s
1956 L. Rotman ROM	5 min 05.3 s
1960 J. Parti HUN	4 min 33.93 s
1964 J. Eschert GER	4 min 35.14 s
1968 T. Tatai HUN	4 min 36.14 s
1972 I. Patzaichin ROM	4 min 08.94 s
1976 M. Ljubek YUG	4 min 09.51 s
1980 L. Lubenov BUL	4 min 12.38 s
1984 U. Eicke GER	4 min 06.32 s

Canadian Pairs

Course 500 m (546 yd). Not held before 1976.

1976 URS	1 min 45.81 s
1980 HUN	1 min 43.39 s
1984 YUG	1 min 43.67 s

Course 1,000 m (1,094 yd). Not held before 1936

1936 TCH	4 min 50.1 s
1948 TCH	5 min 07.1 s
1952 DEN	4 min 38.3 s
1956 ROM	4 min 47.4 s
1960 URS	4 min 17.94 s
1964 URS	4 min 04.64 s
1968 ROM	4 min 07.18 s
1972 URS	3 min 52.60 s
1976 URS	3 min 52.76 s
1980 ROM	3 min 47.65 s
1984 ROM	3 min 40.60 s

Kayak Singles

Course 500 m (546 yd). Not held before 1976.

1976 V. Diba ROM	1 min 46.1 s
1980 V. Parfenovich URS	1 min 43.43 s
1984 I. Ferguson NZL	1 min 47.84 s

Course 1,000 m (1,094 yd).
Not held before 1936.

1936 G. Hradetzky AUT	4 min 22.9 s
1948 G. Fredriksson SWE	4 min 33.2 s
1952 G. Fredriksson SWE	4 min 07.9 s
1956 G. Fedriksson SWE	4 min 12.8 s
1960 E. Hansen DEN	3 min 53.0 s
1964 R. PetersonSWE	3 min 57.13 s
1968 M. Hesz HUN	4 min 02.63 s
1972 A. Shaparenko URS	3 min 48.06 s
1976 R. Helm GDR	3 min 48.20 s
1980 R. Helm GDR	3 min 48.77 s
1984 A. Thompson NZL	3 min 45.73 s

Kayak Pairs

Course 500 m (546 yd). Not held before 1976.

1976 GDR	1 min 35.87 s
1980 URS	1 min 32.38 s
1984 NZL	1 min 34.21 s

Course 1,000 m (1,094 yd).
Not held before 1936.

1936 AUT	4 min 03.8 s
1948 SWE	4 min 07.3 s
1952 FIN	3 min 51.1 s
1956 GER	3 min 49.6 s
1960 SWE	3 min 34.73 s
1964 SWE	3 min 38.54 s
1968 URS	3 min 37.54 s
1972 URS	3 min 31.23 s
1976 URS	3 min 29.01 s
1980 URS	3 min 26.72 s
1984 CAN	3 min 24.22 s

Kayak Fours

Course 1,000 m (1,094 yd). Not held before 1964.

1964 URS	3 min 14.67 s
1968 NOR	3 min 14.38 s
1972 URS	3 min 14.02 s
1976 URS	3 min 08.69 s
1980 GDR	3 min 13.76 s
1984 NZL	3 min 02.28 s

Slalom–Canadian Singles

Not held before 1972.

1972 R. Eiben GDR	315.84 pts
1976 Not held	

Course 500 m (546 yd)
Not held before 1976.

1976 A. Rogov URS	1 min 59.23 s
1980 S. Prostrekhin URS	1 min 53.37 s
1984 Not held	

Slalom–Canadian Pairs

Not held before 1972.

1972 GDR	310.68 pts
1976 Not held	

Course 500 m (546 yd)
Not held before 1976.

1976 URS	1 min 45.81 s
1980 HUN	1 min 43.39 s
1984 Not held	

Slalom–Kayak Singles

Not held before 1972.

1972 S. Horn GDR	268.56 pts
1976–1984 Not held	

CANOEING (WOMEN)

Kayak Singles

Course 500 m (547 yd). Not held before 1948.

1948 K. Hoff DEN	2 min 31.9 s
1952 S. Saimo FIN	2 min 18.4 s
1956 E. Dementieva URS	2 min 18.9 s
1960 A. Seredina URS	2 min 08.08 s
1964 L. Khvedosyuk URS	2 min 12.87 s
1968 L. Pinaeva URS	2 min 11.09 s
1972 Y. Ryabchinskaya URS	2 min 03.17 s
1976 C. Zirzow GDR	2 min 01.05 s
1980 B. Fischer GDR	1 min 57.96 s
1984 A. Andersson SWE	1 min 58.72 s

Kayak Pairs

Course 500 m (546 yd).
Not held before 1960.

1960 URS	1 min 54.76 s
1964 GER	1 min 56.95 s
1968 GER	1 min 56.44 s
1972 URS	1 min 53.50 s
1976 URS	1 min 51.15 s
1980 GDR	1 min 43.88 s
1984 SWE	1 min 45.25 s

Kayak Fours

Course 500 m. Not held before 1984.

1984 ROM	1 min 38.34 s

Slalom – Kayak Singles

Not held before 1972

1972 A. Bahmann GDR	364.50 pts
1976–1984 Not held.	

CYCLING (MEN)

1,000 Metres Sprint

In 1896–1900 the distance was 2,000 m. From 1924 only times over the last 200 m have been recorded.

1896 P. Masson FRA	4 min 56.0 s
1900 G. Taillandier FRA	2 min 52.0 s
1904 Not held	
1908 Final declared void because time limit was exceeded.	
1912 Not held	
1920 M. Peeters HOL	1 min 38.3 s
1924 L. Michard FRA	12.8 s
1928 R. Beaufrand FRA	13.2 s
1932 J. van Egmond HOL	12.6 s
1936 T. Merkens GER	11.8 s
1948 M. Ghella ITA	12.0 s
1952 E. Sacchi ITA	12.0 s
1956 M. Rousseau FRA	11.4 s
1960 S. Gaiardoni ITA	11.1 s
1964 G. Pettenella ITA	13.69 s
1968 D. Morelon FRA	10.68 s
1972 D. Morelon FRA	11.69 s
1976 A. Tkak TCH	nda
1980 L. Hesslich GDR	nda
1984 M. Gorski USA	nda

1,000 Metres Time Trial

Not held before 1928.

1928 W. Falck-Hansen DEN	1 min 14.4 s
1932 E. Gray AUS	1 min 13.0 s
1936 A. van Vliet HOL	1 min 12.0 s
1948 J. Dupont FRA	1 min 13.5 s
1952 R. Mockridge AUS	1 min 11.1
1956 L. Faggin ITA	1 min 09.8
1960 S. Gaiardoni ITA	1 min 07.27
1964 P. Sercu BEL	1 min 09.59
1968 P. Trentin FRA	1 min 03.91
1972 N.C. Fredborg DEN	1 min 06.44
1976 K.J. Grunke GDR	1 min 05.927
1980 L. Thoms GDR	1 min 02.955
1984 F. Schmidtke GER	1 min 06.10

4,000 Metres Pursuit (Individual)

Not held before 1964.

1964 J. Daler TCH	5 min 04.75
1968 D. Rebillard FRA	4 min 41.71
1972 K. Knudsen NOR	4 min 45.74
1976 G. Braun GER	4 min 47.61
1980 R. Dill-Bundi SUI	4 min 35.66
1984 S. Hegg USA	4 min 39.35

Individual Points Race

Not held before 1984

1984 R. Illegems BEL

4,000 Metres Pursuit (Team)

1920 ITA	5 min 20.0
1924 ITA	5 min 15.0
1928 ITA	5 min 01.8
1932 ITA	4 min 53.0
1936 FRA	4 min 45.0
1948 FRA	4 min 57.8
1952 ITA	4 min 46.1
1956 ITA	4 min 37.4
1960 ITA	4 min 30.90
1964 GER	4 min 35.67
1968 DEN	4 min 22.44
1972 GER	4 min 22.14
1976 GER	4 min 21.06
1980 URS	4 min 15.70
1984 AUS	4 min 25.99

2,000 Metres Tandem

Not held before 1908. From 1928 onl times over the last 200 m have bee recorded.

1908 FRA	3 min 07.6
1912 Not held	
1920 GBR	2 min 49.4
1924 FRA	2 min 40.0
1928 HOL	11.8
1932 FRA	12.0
1936 GER	11.8
1948 ITA	11.3
1952 AUS	11.0
1956 AUS	10.8
1960 ITA	10.7
1964 ITA	10.75
1968 FRA	9.83
1972 URS	10.52
1976–1984 Not held	

Road Race (Individual)

In 1896 the distance was 87 km (miles); in 1912 320 km (199 miles); 1920 175 km (109 miles); in 1924 1 km (117 miles); in 1928 169 km (1 miles); in 1932 and 1936 100 km (miles); in 1948 199.6 km (124 mile in 1952 190.4 km (118 miles); in 19 187.7 km (117 miles); in 1960 175.4 k

(109 miles); in 1964 194.8 km (121 miles); in 1968 196.2 km (122 miles); in 1972 182.4 km (113 miles).

1896	A. Konstantinidis GRE	3 hr 22 min 31.0 s
1900–1908	Not held	
1912	R. Lewis SAF	1 hr 42 min 39.0 s
1920	H. Stenqvist SWE	4 hr 40 min 01.8 s
1924	A. Blanchonnet FRA	6 hr 20 min 48.0 s
1928	H. Hansen DEN	4 hr 47 min 18.0 s
1932	A. Pavesi ITA	2 hr 28 min 05.6 s
1936	R. Charpentier FRA	2 hr 33 min 05.0 s
1948	J. Beyaert FRA	5 hr 18 min 12.6 s
1952	A. Noyelle BEL	5 hr 06 min 03.4 s
1956	E. Baldini ITA	5 hr 21 min 17.0 s
1960	V. Kapitonov URS	4 hr 20 min 37.0 s
1964	M. Zanin ITA	4 hr 39 min 51.63 s
1968	P. Vianelli ITA	4 hr 41 min 25.24 s
1972	H. Kuiper HOL	4 hr 14 min 37.0 s
1976	B. Johansson SWE	4 hr 46 min 52.0 s
1980	S. Sukhoruchenkov URS	4 hr 48 min 28.9 s
1984	A. Grewal USA	4 hr 59 min 57 s

Road Race (Team)

Although team medals were awarded from 1912, a separate team event was not held until 1960. From 1960 it has been a 100 km. (62 miles) time trial.

1912	SWE	44 hr 35 min 33.6 s
1920	FRA	19 hr 16 min 43.2 s
1924	FRA	19 hr 30 min 14.0 s
1928	DEN	15 hr 09 min 14.0 s
1932	ITA	7 hr 27 min 15.2 s
1936	FRA	7 hr 39 min 16.2 s
1948	BEL	15 hr 58 min 17.4 s
1952	BEL	15 hr 20 min 46.6 s
1956	FRA (22 pts)	16 hr 10 min 36 s
1960	ITA	2 hr 14 min 33.53 s
1964	HOL	2 hr 26 min 31.19 s
1968	HOL	2 hr 07 min 49.06 s
1972	URS	2 hr 11 min 17.8 s
1976	URS	2 hr 08 min 53.0 s
1980	URS	2 hr 01 min 21.7 s
1984	ITA	1 hr 58 min 28 s

CYCLING (WOMEN)

Road Race (Individual)

Not held before 1984; 79.2 km

1984	C. Carpenter Phinney	2 hr 11 min 14 s

EQUESTRIAN SPORTS

Show Jumping (Individual)

Not held before 1900

1900	A. Haegeman (Benton II) BEL	2 min 16.0 s
1904–1908	Not held	
1912	J. Cariou (Mignon) FRA	186 pts
1920	T. Lequio (Trebecco) ITA	2 flts
1924	A. Gemuseus (Lucette) SUI	6 flts
1928	F. Ventura (Eliot) TCH	0 flts
1932	T. Nishi (Uranus) JPN	8 flts
1936	K. Hasse (Tora) GER	4 flts
1948	H. Mariles-Cortes (Arete) MEX	6.25 flts
1952	P.J. d'Oriola (Ali Baba) FRA	8 flts
1956	H.G. Winkler (Halla) GER	4 flts
1960	R. d'Inzeo (Posillipo) ITA	12 flts
1964	P.J. d'Oriola (Lutteur) FRA	9 flts
1968	W. Steinkraus (Snowbound) USA	4 flts
1972	G. Mancinelli (Ambassador) ITA	8 flts
1976	A. Schockemoehle (Warwick Rex) GER	0 flts
1980	J. Kowalczyk (Artemor) POL	8.00 flts
1984	J. Fargis (Touch of Class) USA	0 flts

Show Jumping (Team) (Nations' Cup)

Not held before 1912.

1912	SWE	545 pts
1920	SWE	14 flts
1924	SWE	42.5 flts
1928	ESP	4 flts
1932	Not awarded (no nation completed the course with three riders).	
1936	GER	44 flts
1948	MEX	34.25 flts
1952	GBR	40.75 flts
1956	GER	40 flts
1960	GER	46.5 flts
1964	GER	68.50 flts
1968	CAN	102.75 flts
1972	GER	32.00 flts
1976	FRA	40 flts
1980	URS	20.25 flts
1984	USA	12 flts

Dressage (Individual)

Not held before 1912.

1912	C. Bonde (Emperor) SWE	15 flts
1920	J. Lundblad (Uno) SWE	27.937 pts
1924	E. Linder (Piccolomini) SWE	276.4 pts
1928	C.F. Frhr von Langen (Draufganger) GER	237.42 pts
1932	F.X. Lesage (Taine) FRA	343.75 pts
1936	H. Pollay (Kronos) GER	1,760.0 pts
1948	H. Moser (Hummer) SUI	492.5 pts
1952	H. St Cyr (Master Rufus) SWE	561.0 pts
1956	H. St. Cyr (Juli) SWE	860 pts
1960	S. Filatov (Absent) URS	2,144 pts
1964	H. Chammartin (Woermann) SUI	1,504 pts
1968	I. Kizimov (Ikhor) URS	1,572 pts
1972	L. Linsenhoff (Piaff) GER	1,229 pts
1976	E. Stueckelberger (Granat) SUI	1,486 pts
1980	E. Theurer (Mon Cherie) AUT	1,370 pts
1984	Dr. R. Klimake GER	1,504 pts

Dressage (Team)

Not held before 1928.

1928	GER	669.72 pts
1932	FRA	2,818.75 pts
1936	GER	5,074 pts
1948	FRA	1,269 pts
1952	SWE	1,597.5 pts
1956	SWE	2,475 pts
1960	Not held	
1964	GER	2,558 pts
1968	GER	2,699 pts
1972	URS	5,095 pts
1976	GER	5,155 pts
1980	URS	4,383 pts
1984	GER	4,955 pts

Three-Day Event (Individual)

Not held before 1912.

1912	A. Nordlander (Lady Artist) SWE	46.59 pts
1920	H. Morner (Germania) SWE	1,775 pts
1924	A.D.C. van der Voort van Zijp (Silver Piece) HOL	1,976 pts
1928	C.F. Pahud de Mortanges (Marcroix) HOL	1,969.82 pts
1932	C.F. Pahud de Mortanges (Marcroix) HOL	1,813.83 pts
1936	L. Stubbendorf (Nurmi) GER	37.70 flts
1948	B. Chevalier (Aiglonne) FRA	+4 pts
1952	H. von Blixen-Finecke (Jubal) SWE	28.33 flts
1956	P. Kastenman (Iluster) SWE	66.53 flts
1960	L. Morgan (Salad Days) AUS	+7.15 pts
1964	M. Checcoli (Surbean) ITA	64.40 pts
1968	J.J. Guyon (Pitou) FRA	38.86 flts
1972	R. Meade (Laurieston) GBR	57.73 pts
1976	E. Coffin (Bally-Cor) USA	114.99 flts
1980	F.E. Roman (Rossinan) ITA	108.60 flts
1984	M. Todd NZL	51.60 pts

Three-Day Event (Team)

Not held before 1912.

1912	SWE	139.06 pts
1920	SWE	5,057.5 pts
1924	HOL	5,297.5 pts
1928	HOL	5,865.68 pts
1932	USA	5,038.083 pts
1936	GER	676.65 flts
1948	USA	161.50 flts
1952	SWE	221.94 flts
1956	GBR	355.48 flts
1960	AUS	128.18 flts
1964	ITA	85.80 pts
1968	GBR	175.93 flts
1972	GBR	95.53 pts
1976	USA	441.00 flts
1980	URS	457.00 flts
1984	USA	186.00 pts

FENCING (MEN)

Foil (Individual)

1896	E. Gravelotte FRA	4 wins
1900	E. Coste FRA	6 wins
1904	R. Fonst CUB	nda
1908	Not held	
1912	N. Nadi ITA	7 wins
1920	N. Nadi ITA	10 wins

1924	R. Ducret FRA	6 wins
1928	L. Gaudin FRA	9 wins
1932	G. Marzi ITA	9 wins
1936	G. Gaudini ITA	7 wins
1948	J. Buhan FRA	7 wins
1952	C. d'Oriola FRA	8 wins
1956	C. d'Oriola FRA	6 wins
1960	V. Zhdanovich URS	7 wins
1964	E. Franke POL	3 wins
1968	I. Drimba ROM	4 wins
1972	W. Woyda POL	5 wins
1976	F. Dal Zotto ITA	4 wins
1980	V. Smirnov URS	1 win
1984	M. Numa ITA	nda

Foil (Team)

Not held before 1920, except in 1904 when there was a competition won by Cuba from an international team.

1920	ITA
1924	FRA
1928	ITA
1932	FRA
1936	ITA
1948	FRA
1952	FRA
1956	ITA
1960	URS
1964	URS
1968	FRA
1972	POL
1976	GER
1980	FRA
1984	ITA

Epee (Individual)

Not held before 1900.

1900	R. Fonst CUB	nda
1904	R. Fonst CUB	nda
1908	G. Alibert FRA	5 wins
1912	P. Anspach BEL	6 wins
1920	A. Massard FRA	9 wins
1924	C. Delporte BEL	8 wins
1928	L. Gaudin FRA	8 wins
1932	G. Cornaggia-Medici ITA	8 wins
1936	F. Riccardi ITA	5 wins
1948	L. Cantone ITA	7 wins
1952	E. Mangiarotti ITA	7 wins
1956	C. Pavesi ITA	5 wins
1960	G. Delfino ITA	5 wins
1964	G. Kriss URS	2 wins
1968	G. Kulcsar HUN	4 wins
1972	C. Fenyvesi HUN	4 wins
1976	A. Pusch GER	3 wins
1980	J. Harmenberg SWE	4 wins
1984	P. Boisse FRA	nda

Epee (Team)

Not held before 1908.

1908	FRA
1912	BEL
1920	ITA
1924	FRA
1928	ITA
1932	FRA
1936	ITA
1948	FRA
1952	ITA
1956	ITA
1960	ITA
1964	HUN
1968	HUN
1972	HUN
1976	SWE
1980	FRA
1984	GER

Sabre (Individual)

1896	I. Georgiadis GRE	4 wins
1900	G. de la Falaise FRA	nda
1904	M. De Diaz CUB	nda
1908	J. Fuchs HUN	6 wins
1912	J. Fuchs HUN	6 wins
1920	N. Nadi ITA	11 wins
1924	S. Posta HUN	5 wins
1928	O. Tersztyanszky HUN	9 wins
1932	G. Piller HUN	8 wins
1936	E. Kabos HUN	7 wins
1948	A. Gerevich HUN	7 wins
1952	P. Kovacs HUN	8 wins
1956	R. Karpati HUN	6 wins
1960	R. Karpati HUN	5 wins
1964	T. Pezsa HUN	2 wins
1968	J. Pawlowski POL	4 wins
1972	V. Sidiak URS	4 wins
1976	V. Krovopousky URS	5 wins
1980	V. Korvopuskov URS	4 wins
1984	J.F. Lamour FRA	nda

Sabre (Team)

Not held before 1908

1908	HUN
1912	HUN
1920	ITA
1924	ITA
1928	HUN
1932	HUN
1936	HUN
1948	HUN
1952	HUN
1956	HUN
1960	HUN
1964	URS
1968	URS
1972	ITA
1976	URS
1980	URS
1984	ITA

FENCING (WOMEN)

Foil (Individual)

Not held before 1924.

1924	E. Osiier DEN	5 wins
1928	H. Mayer GER	7 wins
1932	E. (Preis) Muller AUT	8 wins
1936	I. Elek HUN	6 wins
1948	I. Elek HUN	6 wins
1952	I. Camber ITA	5 wins
1956	G. Sheen GBR	6 wins
1960	H. Schmid GER	6 wins
1964	I. (Ujlaki) Rejto HUN	2 wins
1968	Y. Novikova URS	4 wins
1972	A. (Ragno) Lonzi ITA	4 wins
1976	I. Schwarczenberger HUN	4 wins
1980	P. Trinquet FRA	4 wins
1984	J. Luan CHN	nda

Foil (Team)

Not held before 1960.

1960	URS
1964	HUN
1968	URS
1972	URS
1976	URS
1980	FRA
1984	GER

GYMNASTICS (MEN)

Combind Exercises (Individual)

Not held before 1900.

1900	G. Sandras FRA	302 pt
1904	J. Lenhart AUT	69.80 pt
1908	A. Braglia ITA	317 pt
1912	A. Braglia ITA	135 pt
1920	G. Zampori ITA	88.35 pt
1924	L. Stukelj YUG	110.340 pt
1928	G. Miez SUI	247.500 pt
1932	R. Neri ITA	140.625 pt
1936	A. Schwarzmann GER	133.100 pt
1948	V. Huhtanen FIN	229.7 pt
1952	V. Chukarin URS	115.70 pt
1956	V. Chukarin URS	114.25 pt
1960	B. Shakhlin URS	115.95 pt
1964	Y. Endo JPN	115.95 pt
1968	S. Kato JPN	115.90 pt
1972	S. Kato JPN	114.650 pt
1976	N. Andrianov URS	116.650 pt
1980	A. Dityatin URS	118.650 pt
1984	K. Gushiken JPN	118.700 pt

Combined Exercises (Team)

Not held before 1904.

1904	USA	374.43 pt
1908	SWE	438 pt
1912	ITA	265.75 pt
1920	ITA	359.855 pt
1924	ITA	839.058 pt
1928	SUI	1,718.625 pt
1932	ITA	541.850 pt
1936	GER	657.430 pt
1948	FIN	1,358.30 pt
1952	URS	574.40 pt
1956	URS	568.25 pt
1960	JPN	575.20 pt
1964	JPN	577.95 pt
1968	JPN	575.90 pt
1972	JPN	571.25 pt
1976	JPN	576.85 pt
1980	URS	589.60 pt
1984	USA	591.40 pt

Floor Exercises

Not held before 1932.

1932	I. Pelle HUN	9.60 pt
1936	G. Miez SUI	18.666 pt
1948	F. Pataki HUN	38.70 pt
1952	W. Thoresson SWE	19.25 pt
1956	V. Muratov URS	19.20 pt
1960	N. Aihara JPN	19.45 pt
1964	F. Menichelli ITA	19.45 pt
1968	S. Kato JPN	19.475 pt
1972	N. Andrianov URS	19.175 pt
1976	N. Andrianov URS	19.450 pt
1980	R. Bruckner GDR	19.750 pt
1984	N. Li CHN	19.925 pt

Horizontal Bar

1896	H. Weingartner GER
1900	Not held
1904	A. Heida USA &

E. Hennig USA	40 pts
1908–1920 Not held	
1924 L. Stukelj YUG	19.73 pts
1928 G. Miez SUI	19.17 pts
1932 D. Bixler USA	18.33 pts
1936 A. Saarvala FIN	19.367 pts
1948 J. Stalder SUI	39.7 pts
1952 J. Gunthard SUI	19.55 pts
1956 T. Ono JPN	19.60 pts
1960 T. Ono JPN	19.60 pts
1964 B. Shakhlin URS	19.625 pts
1968 M. Voronin URS & A. Nakayama JPN	19.550 pts
1972 M. Tsukahara JPN	19.725 pts
1976 M. Tsukahara JPN	19.675 pts
1980 S. Deltchev BUL	19.825 pts
1984 S. Morisue JPN	20.000 pts

Parallel Bars

1896 A. Flatow GER	
1900 Not held	
1904 G. Eyser USA	44 pts
1908–1920 Not held	
1924 A. Guttinger SUI	21.63 pts
1928 L. Vacha TCH	18.83 pts
1932 R. Neri ITA	28.97 pts
1936 K. Frey GER	19.067 pts
1948 M. Reusch SUI	39.50 pts
1952 H. Eugster SUI	19.65 pts
1956 V. Chukarin URS	19.20 pts
1960 B. Shakhlin URS	19.40 pts
1964 Y. Endo JPN	19.675 pts
1968 A. Nakayama JPN	19.475 pts
1972 S. Kato JPN	19.475 pts
1976 S. Kato JPN	19.675 pts
1980 A. Tkachyov URS	19.775 pts
1984 B. Conner USA	19.950 pts

Pommelled Horse

1896 J.A. Zutter SUI	
1900 Not held	
1904 A. Heida USA	42 pts
1908–1920 Not held	
1924 J. Wilhelm SUI	21.23 pts
1928 H. Hanggi SUI	19.75 pts
1932 I. Peelle HUN	19.07 pts
1936 K. Frey GER	19.333 pts
1948 P. Aaltonen FIN V. Huhtanen FIN H. Savolainen FIN	38.7 pts
1952 V. Chukarin URS	19.50 pts
1956 B. Shakhlin URS	19.25 pts
1960 E. Ekman FIN & B. Shakhlin URS	19.375 pts
1964 M. Cerar YUG	19.525 pts
1968 M. Cerar YUG	19.325 pts
1972 V. Klimenko URS	19.125 pts
1976 Z. Magyar HUN	19.700 pts
1980 Z. Magyar HUN	19.925 pts
1984 N. Li CHN & P. Vidmar USA	19.950 pts

Long Horse Vault

1896 C. Schuhmann GER	
1900 Not held	
1904 A. Heida USA & G. Eyser USA	36 pts
1908–1920 Not held	
1924 F. Kriz USA	9.98 pts
1928 E. Mack SUI	9.58 pts
1932 S. Guglielmetti ITA	18.03 pts
1936 A. Schwarzmann GER	19.20 pts
1948 P. Aaltonen FIN	39.1 pts
1952 V. Chukarin URS	19.20 pts
1956 H. Bantz GER & V. Muratov URS	18.85 pts
1960 T. Ono JPN & B. Shakhlin URS	19.35 pts
1964 H. Yamashita JPN	19.660 pts
1968 M. Voronin URS	19.000 pts
1972 K. Koste GDR	18.850 pts
1976 N. Andrianov URS	19.450 pts
1980 N. Andrianov URS	19.825 pts
1984 Y. Lou CHN	19.950 pts

Rings

1896 I. Mitropoulos GRE	
1900 Not held	
1904 H. Glass USA	45 pts
1908–1912 Not held	
1924 F. Martino ITA	21.553 pts
1928 L. Stukelj YUG	19.25 pts
1932 G. Gulack USA	18.97 pts
1936 A. Hudec TCH	19.433 pts
1948 K. Frei SUI	39.6 pts
1952 G. Shaginyan URS	19.75 pts
1956 A. Azarian URS	19.35 pts
1960 A. Azarian URS	19.725 pts
1964 T. Hayata JPN	19.475 pts
1968 A. Nakayama JPN	19.450 pts
1972 A. Nakayama JPN	19.350 pts
1976 N. Andrianov URS	19.650 pts
1980 A. Dityatin URS	19.875 pts
1984 K. Gushiken JPN & N. Li CHN	19.850 pts

GYMNASTICS (WOMEN)

Combined Exercises (Individual)

Not held before 1952.

1952 M. Gorokhovskaya URS	76.78 pts
1956 L. Latynina URS	74.933 pts
1960 L. Latynina URS	77.031 pts
1964 V. Caslavska TCH	77.564 pts
1968 V. Caslavska TCH	78.25 pts
1972 L. Turischeva URS	77.025 pts
1976 N. Comaneci ROM	79.275 pts
1980 Y. Davydova URS	79.150 pts
1984 M.L. Retton USA	79.175 pts

Combined Exercises (Team)

Not held before 1928.

1928 HOL	316.75 pts
1932 Not held	
1936 GER	506.50 pts
1948 TCH	445.45 pts
1952 URS	527.03 pts
1956 URS	444.80 pts
1960 URS	382.320 pts
1964 URS	380.890 pts
1968 URS	382.85 pts
1972 URS	380.50 pts
1976 URS	380.35 pts
1980 URS	394.90 pts
1984 ROM	392.20 pts

Beam

Not held before 1952.

1952 N. Bocharova URS	19.22 pts
1956 A. Keleti HUN	18.800 pts
1960 E. Bosakova TCH	19.283 pts
1964 V. Caslavska TCH	19.449 pts
1968 N. Kuchinskaya URS	19.650 pts
1972 O. Korbut URS	19.400 pts
1976 N. Comaneci ROM	19.950 pts
1980 N. Comaneci ROM	19.800 pts
1984 S. Pauca ROM	19.800 pts

Asymmetrical Bars

Not held before 1952.

1952 M. Korondi HUN	19.40 pts
1956 A. Keleti HUN	18.966 pts
1960 P. Astakhova URS	19.616 pts
1964 P. Astakhova URS	19.332 pts
1968 V. Caslavska TCH	19.650 pts
1972 K. Janz GDR	19.675 pts
1976 N. Comaneci ROM	20.000 pts
1980 N. Gnauck GDR	19.875 pts
1984 Y. Ma CHN	19.950 pts

Horse Vault

Not held before 1952.

1952 Y. Kalinchuk URS	19.20 pts
1956 L. Latynina URS	18.833 pts
1960 M. Nikolaeva URS	19.316 pts
1964 V. Caslavska TCH	19.483 pts
1968 V. Caslavska TCH	19.775 pts
1972 K. Janz GDR	19.525 pts
1976 N. Kim URS	19.800 pts
1980 N. Shaposhnikova URS	19.725 pts
1984 E. Szabo ROM	19.875 pts

Floor Exercises

Not held before 1952.

1952 A. Keleti HUN	19.36 pts
1956 L. Latynina URS & A. Keleti HUN	18.733 pts
1960 L. Latynina URS	19.583 pts
1964 L. Latynina URS	19.599 pts
1968 V. Caslavska TCH & L. Petrik URS	19.675 pts
1972 O. Korbut URS	19.575 pts
1976 N. Kim URS	19.850 pts
1980 N. Kim URS & N. Comaneci ROM	19.875 pts
1984 E. Szabo ROM	19.975 pts

Rhythmic Gymnastics

Not held before 1984.

1984 L. Fung CAN	57.950 pts

HANDBALL (MEN)

Not held before 1972.

1972 YUG
1976 URS
1980 GDR
1984 YUG

HANDBALL (WOMEN)

Not held before 1976.

1976 URS
1980 URS
1984 YUG

HOCKEY (MEN)

Not held before 1908.

1908 ENG
1912 Not held
1920 ENG
1924 Not held

1928 IND
1932 IND
1936 IND
1948 IND
1952 IND
1956 IND
1960 PAK
1964 IND
1968 PAK
1972 GER
1976 NZL
1980 IND
1984 PAK

HOCKEY (WOMEN)

Not held before 1980
1980 ZIM
1984 HOL

JUDO

Lightweight

Weight limit 1964 68 kg (149 lb 14½ oz): from 1972 63 kg (138 lb 14¼ oz); Not held before 1964.
1964 T. Nakatani JPN
1968 Not held
1972 T. Kawaguchi JPN
1976 H. Rodriguez CUB

Welterweight

Weight limit 70 kg (154 lb 5 oz). Not held before 1972.
1972 T. Nomura JPN
1976 N. Nevzorov URS

Middleweight

Weight limit 80 kg (176 lb 6 oz). Not held before 1964.
1964 I. Okano JPN
1968 Not held
1972 S. Sekine JPN
1976 I. Sonoda JPN

Light Heavyweight

Weight limit 93 kg (205 lb 0½ oz). Not held before 1972.
1972 S. Khokhoshvili URS
1976 K. Ninomiya JPN

Heavyweight

Weight limit 1964 over 80 kg (176 lb 6 oz); from 1972 over 93 kg (205 lb 0½ oz). Not held before 1964.
1964 I. Inokuma JPN
1968 Not held
1972 W. Ruska HOL
1976 S. Novikov URS

Open

No weight limit. Not held before 1964.
1964 A. Geesink HOL
1968 Not held
1972 W. Ruska HOL
1976 H. Uemura JPN
1980 D. Lorenz GDR
1984 Y. Yamashita JPN

From 1980 all the weight categories were changed with the exception of the open category.

Bantamweight 60 kg (132 lb 4¼ oz)

1980 T. Rey FRA
1984 S. Hosokawa JPN

Featherweight 65 kg (143 lb 4⅔ oz)

1980 N. Solodukhin URS
1984 Y. Matsuoka JPN

Lightweight 71 kg (156 lb 8¼ oz)

1980 E. Gamba ITA
1984 Byeong-Keun Ahn KOR

Light middleweight 78 kg (171 lb 1 oz)

1980 S. Khabareli URS
1984 F. Wieneke GER

Middleweight 86 kg (189 lb 9⅓ oz)

1980 J. Roethlisberger SUI
1984 P. Seisenbacher AUT

Light heavyweight 95 kg (209 lb 7 oz)

1980 R. Van de Walle BEL
1984 Hyoung—Zoo Ha KOR

Heavyweight Over 95 kg (209 lb 7 oz)

1980 A. Parisi FRA

1984 H. Saito JPN

MODERN PENTATHLON

The five events are horse riding, fencing, pistol shooting, swimming and cross-country running. From 1912 to 1952 a point for each place achieved in the separate events was awarded i.e. 1 for the winner, 2 for the second etc. In 1956 a scoring system evaluating performance rather than position in each event was introduced.

Modern Pentathlon (Individual)

Not held before 1912.

1912 G. Lilliehook SWE	27 pts
1920 G. Dyrssen SWE	18 pts
1924 B. Lindman SWE	18 pts
1928 S. Thofelt SWE	47 pts
1932 J. Oxenstierna SWE	32 pts
1936 G. Handrick GER	31.5 pts
1948 W. Grut SWE	16 pts
1952 L. Hall SWE	32 pts
1956 L. Hall SWE	4,833 pts
1960 F. Nemeth HUN	5,024 pts
1964 F. Torok HUN	5,116 pts
1968 B. Ferm SWE	4,964 pts
1972 A. Balczo HUN	5,412 pts
1976 J. Pyciak-Peciak POL	5,520 pts
1980 A. Starostin URS	5,568 pts
1984 D. Masala ITA	5,469 pts

Modern Pentathlon (Team)

Not held before 1952.

1952 HUN	166 pts
1956 URS	13,690.5 pts
1960 HUN	14,863 pts
1964 URS	14,961 pts
1968 HUN	14,325 pts
1972 URS	15,968 pts
1976 GBR	15,559 pts
1980 URS	16,126 pts
1984 ITA	16,060 pts

ROWING (MEN)

The course for all events has been 2,000 m (1 mile 427 yd) since 1952. In 1904 it was 3,219 m (2 miles); in 1908 2,414 m (1½ miles); in 1948 1,880 m (1 mile 296 yd). The records marked take into account only the standardized course

Single Sculls

Not held before 1900.

1900 H. Barrelet FRA	7 min 35.6 s
1904 F. Greer USA	10 min 08.5 s
1908 H. Blackstaffe GBR	9 min 26.0 s
1912 W. D. Kinnear GBR	7 min 47.6 s
1920 J. B. Kelly USA	7 min 35.0 s
1924 J. Beresford GBR	7 min 49.2 s
1928 H. Pearce AUS	7 min 11.0 s
1932 H. Pearce AUS	7 min 44.4 s
1936 G. Schafer GER	8 min 21.5 s
1948 M. Wood AUS	7 min 24.4 s
1952 Y. Tyukalov URS	8 min 12.8 s
1956 V. Ivanov URS	8 min 02.5 s
1960 V. Ivanov URS	7 min 13.96 s
1964 V. Ivanov URS	8 min 22.51 s
1968 H. J. Wienese HOL	7 min 47.80 s
1972 Y. Malyshev URS	7 min 10.12 s
1976 P. Karppinen FIN	7 min 29.03 s
1980 P. Karppinen FIN	7 min 09.61 s
1984 P. Karppinen FIN	7 min 00.24 s

Double Sculls

Not held before 1904.

1904 USA	10 min 03.2 s
1908-1912 Not held	
1920 USA	7 min 09.0 s
1924 USA	6 min 34.0 s
1928 USA	6 min 41.4 s
1932 USA	7 min 17.4 s
1936 GBR	7 min 20.8 s
1948 GBR	6 min 51.3 s
1952 ARG	7 min 32.2 s
1956 URS	7 min 24.0 s
1960 TCH	6 min 47.50 s
1964 URS	7 min 10.66 s
1968 URS	6 min 51.82 s
1972 URS	7 min 01.77 s
1976 NOR	7 min 13.20 s
1980 GDR	6 min 24.33 s
1984 USA	6 min 36.87 s

Coxless Pairs

Not held before 1900.

1900 BEL	7 min 49.6 s
1904 USA	10 min 57.0 s
1908 GBR	9 min 41.0 s
1912-1920 Not held	
1924 HOL	8 min 19.4 s
1928 GER	7 min 06.4 s
1932 GBR	8 min 00.0 s

1936 GER	8 min 16.1 s
1948 GBR	7 min 21.1 s
1952 USA	8 min 20.7 s
1956 USA	7 min 55.4 s
1960 URS	7 min 02.00 s
1964 CAN	7 min 32.94 s
1968 GDR	7 min 26.56 s
1972 GDR	6 min 53.16 s
1976 GDR	7 min 23.31 s
1980 GDR	6 min 48.01 s
1984 ROM	6 min 45.39 s

Coxed Pairs

Not held before 1900.

1900 HOL	7 min 34.2 s
1904-1912 Not held	
1920 ITA	7 min 56.0 s
1924 SUI	8 min 39.0 s
1928 SUI	7 min 42.6 s
1932 USA	8 min 25.8 s
1936 GER	8 min 36.9 s
1948 DEN	8 min 05.0 s
1952 FRA	8 min 28.6 s
1956 USA	8 min 26.1 s
1960 GER	7 min 29.14 s
1964 USA	8 min 21.23 s
1968 ITA	8 min 04.81 s
1972 GDR	7 min 17.25 s
1976 GDR	7 min 58.99 s
1980 GDR	7 min 02.54 s
1984 ITA	7 min 05.99 s

Quadruple Sculls

Not held before 1980.

1980 GDR	5 min 49.81 s
1984 GER	5 min 57.55 s

Coxless Fours

Not held before 1904.

1904 USA	9 min 53.8 s
1908 GBR	8 min 34.0 s
1912-1920 Not held	
1924 GBR	7 min 08.6 s
1928 GBR	6 min 36.0 s
1932 GBR	6 min 58.2 s
1936 GER	7 min 01.8 s
1948 ITA	6 min 39.0 s
1952 YUG	7 min 16.0 s
1956 CAN	7 min 08.8 s
1960 USA	6 min 26.26 s
1964 DEN	6 min 59.30 s
1968 GDR	6 min 39.18 s
1972 GDR	6 min 24.27 s
1976 BUL	6 min 41.36 s
1980 GDR	6 min 08.17 s
1984 NZL	6 min 03.48 s

Coxed Fours

Not held before 1900. In 1900 there was a dispute and two finals were held, (1) for the crews with the fastest times in the heats and (2) for the winners of the three heats.

1900 (1) FRA	7 min 11.0 s
(2) GER	5 min 59.0 s
1904-1908 Not held	
1912 GER	6 min 59.4 s
1920 SUI	6 min 54.0 s
1924 SUI	7 min 18.4 s
1928 ITA	6 min 47.8 s
1932 GER	7 min 19.0 s
1936 GER	7 min 16.2 s
1948 USA	6 min 50.3 s
1952 TCH	7 min 33.4 s
1956 ITA	7 min 19.4 s
1960 GER	6 min 39.12 s
1964 GER	7 min 00.44 s
1968 NZL	6 min 45.62 s
1972 GER	6 min 31.85 s
1976 URS	6 min 40.22 s
1980 GDR	6 min 14.51 s
1984 GBR	6 min 20.28 s

Eights

Not held before 1900.

1900 USA	6 min 09.8 s
1904 USA	7 min 50.0 s
1908 GBR	7 min 52.0 s
1912 GBR	6 min 15.0 s
1920 USA	6 min 02.6 s
1924 USA	6 min 33.4 s
1928 USA	6 min 03.2 s
1932 USA	6 min 37.6 s
1936 USA	6 min 25.4 s
1948 USA	5 min 46.7 s
1952 USA	6 min 25.9 s
1956 USA	6 min 35.2 s
1960 GER	5 min 57.18 s
1964 USA	6 min 18.23 s
1968 GER	6 min 07.00 s
1972 NZL	6 min 08.94 s
1976 GDR	5 min 58.29 s
1980 GDR	5 min 49.05 s
1984 CAN	5 min 41.32 s

ROWING (WOMEN)

Not held before 1976.

Single Sculls

1976 C. Scheiblich GDR	4 min 05.56 s
1980 S. Toma ROM	3 min 40.68 s
1984 V. Racila ROM	3 min 40.68 s

Double Sculls

1976 BUL	3 min 44.36 s
1980 URS	3 min 16.27 s
1984 ROM	3 min 26.75 s

Quadruple Sculls

1976 GDR	3 min 29.99 s
1980 GDR	3 min 15.32 s
1984 ROM	3 min 14.11 s

Coxless Pairs

1976 BUL	4 min 01.22 s
1980 GDR	3 min 30.49 s
1984 ROM	3 min 32.60 s

Coxed Pairs

1976 GDR	3 min 45.08 s
1980-1984 Not held	

Coxed Fours

Not held before 1980

1980 GDR	3 min 19.27 s
1984 ROM	3 min 19.30 s

Eights

1976 GDR	3 min 33.32 s
1980 GDR	3 min 03.32 s
1984 USA	2 min 59.80 s

SHOOTING (MEN)

Free Pistol

Range 50 m (55 yd).

1896 S. Paine (USA)	442 pts
1900 K. Roderer SUI	503 pts
1904-1908 Not held	
1912 A. Lane USA	499 pts
1920 C. Frederick USA	496 pts
1924-1932 Not held	
1936 T. Ullman SWE	559 pts
1948 E. Vasquez Cam PER	545 pts
1952 H. Benner USA	553 pts
1956 P. Linnosvuo FIN	556 pts
1960 A. Gushchin URS	560 pts
1964 V. Markkanen FIN	560 pts
1968 G. Kosykh URS	562 pts
1972 R. Skanaker SWE	567 pts
1976 U. Potteck GDR	573 pts
1980 A. Melentev URS	581 pts
1984 H. Xu CHN	566 pts

Moving Target (Running Boar)

Not held in its present form before 1972. Range 50 m (55 yd).

1972 L. Zhelezniak URS	569 pts
1976 A. Gazov URS	579 pts
1980 I. Sokolov URS	589 pts
1984 Y. Li CHN	587 pts

Rapid Fire Pistol

Range 25 m (27 yd 1 ft)

1896 I. Frangudis GRE	344 pts
1900 M. Larrouy FRA	58 pts
1904 Not held	
1908 P. van Asbroeck BEL	490 pts
1912 A. Lane USA	287 pts
1920 G. Paraense BRA	274 pts
1924 N. H Bailey USA	18 pts
1928 Not held	
1932 R. Morigi ITA	36 pts
1936 C. Van Oyen GER	36 pt
1948 K. Takacs HUN	580 pts
1952 K. Takacs HUN	579 pts
1956 S. Petrescu ROM	587 pts
1960 W. McMillan USA	587 pts
1964 P. Linnosvuo FIN	592 pts
1968 J. Zapedski POL	593 pts
1972 J. Zapedski POL	595 pts
1976 N. Klaar GDR	597 pts
1980 C. Ion ROM	596 pts
1984 T. Kamachi JPN	595 pts

Smallbore Rifle (Prone)

Not held before 1908. Range 50 m (55 yd) except in 1908 when range was 45.7 and 91.4 m (50 and 100 yd), 40 shots. In 1908-12 competitors could fire from any position; in 1920 standing; from 1924 prone

1908 A. A. Carnell GBR	387 pts
1912 F. Hird USA	194 pts
1920 L. A. Nuesslein USA	391 pts
1924 P. C. de Lisle FRA	398 pts
1928 Not held	
1932 B. Ronnmark SWE	294 pts

1936 W. Rogeberg NOR	300 pts
1948 A. Cook USA	599 pts
1952 I. Sarbu ROM	400 pts
1956 G. R. Quellette CAN	600 pts
1960 P. Kohnke GER	590 pts
1964 L. Hammerl HUN	597 pts
1968 J. Kurka TCH	598 pts
1972 H. J. Li PRK	599 pts
1976 K. Smieszek GER	599 pts
1980 K. Varga HUN	599 pts
1984 E. Etzel USA	599 pts

Smallbore Rifle (Three Positions)

Not held before 1952. Range 50 m (55 yd),
Standing, kneeling, prone.

1952 E. Kongshaug NOR	1,164 pts
1956 A. Bogdanov URS	1,172 pts
1960 V. Shamburkin URS	1,149 pts
1964 L. Wigger USA	1,164 pts
1968 B. Klingner GER	1,157 pts
1972 J. Writer USA	1,166 pts
1976 L. Bassham USA	1,162 pts
1980 V. Vlasov URS	1,173 pts
1984 M. Cooper GBR	1,173 pts

Trap Shooting

Not held before 1900. 200 pigeons, except in 1908 when there were 80.

1900 R. de Barbarin FRA	17 pts
1904 Not held	
1908 W. H. Ewing CAN	72 pts
1912 J. Graham USA	96 ps
1920 M. Arie USA	95 pts
1924 G. Halasy HUN	98 pts
1928-1948 Not held	
1952 G. P. Genereux CAN	192 pts
1956 G. Rossini ITA	195 pts
1960 I. Dumitrescu ROM	192 pts
1964 E. Mattarelli ITA	198 pts
1968 J. R. Braithwaite GBR	198 pts
1972 A. Scalzone ITA	199 pts
1976 D.Haldeman USA	190 pts
1980 L. Giovannetti ITA	198 pts
1984 L. Giovannetti ITA	192 pts

Skeet

Not held before 1968.

1968 Y. Petrov URS	198 pts
1972 K. Wirnhier GER	195 pts
1976 J. Panacek TCH	198 pts
1980 H. Rasmussen DEN	196 pts
1984 M. Dryke USA	198 pts

Air Rifle

Not held before 1984.

1984 P. Heberle FRA	589 pts

SHOOTING (WOMEN)

Not held before 1984.

Air Rifle

1984 Pat Spurgin USA	393 pts

Smallbore Rifle (three Positions)

1984 Xiaoxuan Wu CHN	581 pts

Sport Pistol

1984 Linda Thom CAN	585 pts

SWIMMING AND DIVING (MEN)

100 Metres Freestyle

In 1904 the distance was 91.44 m (100 yd).

1896 A. Hajos (Guttmann) HUN	1 min 22.2 s
1900 Not held	
1904 Z. von Halmay HUN	1 min 02.8 s
1908 C. Daniels USA	1 min 05.6 s
1912 D. P. Kahanamoku USA	1 min 03.4 s
1920 D. P. Kahanamoku USA	1 min 01.4 s
1924 J. Weissmuller USA	59.0 s
1928 J. Weissmuller USA	58.6 s
1932 Y. Miyazaki JPN	58.2 s
1936 F. Csik HUN	57.6 s
1948 W. Ris USA	57.3 s
1952 C. Scholes USA	57.4 s
1956 J. Henricks AUS	55.4 s
1960 J. Devitt AUS	55.2 s
1964 D. Schollander USA	53.4 s
1968 M. Wended AUS	52.2 s
1972 M. Spitz USA	51.22 s
1976 J. Montogomery USA	49.99 s
1980 J. Woithe GDR	50.40 s
1984 A. Gaines USA	49.80 s

200 Metres Freestyle

Not held before 1900. In 1904 the distance was 201.17 m (220 yd).

1900 F. Lane AUS	2 min 25.2 s
1904 C. Daniels USA	2 min 44.2 s
1908-1964 Not held	
1968 M. Wenden AUS	1 min 55.2 s
1972 M. Spitz USA	1 min 52.78 s
1976 B. Furniss USA	1 min 50.29 s
1980 S. Kopliakov URS	1 min 49.81 s
1984 M. Gross GER	1 min 47.44 s

400 Metres Freestyle

Not held before 1904. In 1904 the distance was 402.3 m (440 yd).

1904 C. Daniels USA	6 min 16.2 s
1908 H. Taylor GBR	5 min 36.8 s
1912 G. Hodgson CAN	5 min 24.4 s
1920 N. Ross USA	5 min 26.8 s
1924 J. Weissmuller USA	5 min 04.2 s
1928 A. Zorilla ARG	5 min 01.6 s
1932 C. Crabbe USA	4 min 48.4 s
1936 J. Medica USA	4 min 44.5 s
1948 W. Smith USA	4 min 41.0 s
1952 J. Boiteux FRA	4 min 30.7 s
1956 M. Rose AUS	4 min 27.3 s
1960 M. Rose AUS	4 min 18.3 s
1964 D. Schollander USA	4 min 12.2 s
1968 M. Burton USA	4 min 09.0 s
1972 B. Cooper AUS	4 min 00.27 s
1976 B. Goodell USA	3 min 51.93 s
1980 V. Salnikov URS	3 min 51.31 s
1984 G. Dicarlo USA	3 min 51.23 s

1,500 Metres Freestyle

In 1896 the distance was 1,200 m (1,310 yd 1 ft 5½ in); in 1900 1,000 m (1,093 yd 1 ft 10 in); in 1904 1,609.34 m (1 mile).

1896 A. Hajos HUN	18 min 22.2 s
1900 J. Jarvis GBR	13 min 40.2 s
1904 E. Rausch GER	27 min 18.2 s
1908 H. Taylor GBR	22 min 48.4 s
1912 G. Hodgson CAN	22 min 00.0 s
1920 N. Ross USA	22 min 23.2 s
1924 A. Charlton AUS	20 min 06.6 s
1928 A. Borg SWE	19 min 51.8 s
1932 K. Kitamura JPN	19 min 12.4 s
1936 N. Terada JPN	19 min 13.7 s
1948 J. McLane USA	19 min 18.5 s
1952 F. Konno USA	18 min 30.3 s
1956 M. Rose AUS	17 min 58.9 s
1960 J. Konrads AUS	17 min 19.6 s
1964 R. Windle AUS	17 min 01.7 s
1968 M. Burton USA	16 min 38.9 s
1972 N. Burton USA	15 min 52.58 s
1976 B. Goodell USA	15 min 02.40 s
1980 V. Salnikov URS	14 min 58.27 s
1984 M. O'Brien USA	15 min 05.20 s

100 Metres Backstroke

Not held before 1904. In 1904 the distance was 91.44 m (100 yd).

1904 W. Brack GER	1 min 16.8 s
1908 A. Bieberstein GER	1 min 24.6 s
1912 H. Hebner USA	1 min 21.2 s
1920 W. P. Kealoha USA	1 min 15.2 s
1924 W. P. Kealoha USA	1 min 13.2 s
1928 G. Kojac USA	1 min 08.2 s
1932 M. Kiyokawa JPN	1 min 08.6 s
1936 A. Kiefer USA	1 min 05.9 s
1948 A. Stack USA	1 min 06.4 s
1952 Y. Oyakawa USA	1 min 05.4 s
1956 D. Theile AUS	1 min 02.2 s
1960 D. Theile AUS	1 min 01.9 s
1964 Not held	
1968 R. Matthes GDR	58.7 s
1972 R. Matthes GDR	56.58 s
1976 J. Naber USA	55.49 s
1980 B. Baron SWE	56.53 s
1984 R. Carey USA	55.79 s

200 Metres Backstroke

Not held before 1900.

1900 E. Hoppenberg GER	2 min 47.0 s
1904-1960 Not held	
1964 J. Graef USA	2 min 10.3 s
1968 R. Matthes GDR	2 min 09.6 s
1972 R. Matthes GDR	2 min 02.82 s
1976 J. Naber USA	1 min 59.19 s
1980 S. Wladar HUN	2 min 01.93 s
1984 R. Carey USA	2 min 00.23 s

100 Metres Breaststroke

Not held before 1968.

1968 D. McKenzie USA	1 min 07.7 s
1972 N. Taguchi JPN	1 min 04.94 s
1976 J. Hencken USA	1 min 03.11 s
1980 D. Goodhew GBR	1 min 03.34 s
1984 S. Lundquist USA	1 min 1.65 s

200 Metres Breaststroke

Not held before 1908.

1908 F. Holman GBR	3 min 09.2 s
1912 W. Bathe GER	3 min 01.8 s
1920 H. Malmroth SWE	3 min 04.4 s
1924 R. Skelton USA	2 min 56.6 s
1928 Y. Tsuruta JPN	2 min 48.8 s
1932 Y. Tsuruta JPN	2 min 45.4 s
1936 T. Hamuro JPN	2 min 41.5 s

1948	J. Verdeur USA	2 min 39.3 s
1952	J. Davies AUS	2 min 34.4 s
1956	M. Furukawa JPN	2 min 34.7 s
1960	W. Mulliken USA	2 min 37.4 s
1964	I. O'Brien AUS	2 min 27.8 s
1968	F. Munoz MEX	2 min 28.7 s
1972	J. Hencken USA	2 min 21.55 s
1976	D. Wilkie GBR	2 min 15.11 s
1980	R. Zulpa URS	2 min 15.85 s
1984	V. Davis CAN	2 min 13.34 s

100 Metres Butterfly

Not held before 1968.

1968	D. Russell USA	55.9 s
1972	M. Spitz USA	54.27 s
1976	M. Vogel USA	54.35 s
1980	P. Arvidsson SWE	54.92 s
1984	M. Gross GER	53.08 s

200 Metres Butterfly

Not held before 1956.

1956	W. Yorzyk USA	2 min 19.3 s
1960	M. Troy USA	2 min 12.8 s
1964	K. Berry Aus	2 min 06.6 s
1968	C. Robie USA	2 min 08.7 s
1972	M. Spitz USA	2 min 00.70 s
1976	M. Bruner USA	1 min 59.23 s
1980	S. Fesenko URS	1 min 59.76 s
1984	J. Sieben AUS	1 min 57.04 s

200 Metres Individual Medley

Not held before 1984.

1984	A. Baumann CAN	2 min 01.42 s

400 Metres Individual Medley

Not held before 1964. Order of strokes: butterfly, backstroke, breaststroke, freestyle.

1964	R. Roth USA	4 min 45.4 s
1968	C. Hickcox USA	4 min 48.4 s
1972	G. Larsson SWE	4 min 31.98 s
1976	R. Strachan USA	4 min 23.68 s
1980	A. Sidorenko URS	4 min 22.89 s
1984	A. Baumann CAN	4 min 17.41 s

4 × 100 Metres Freestyle

Not held before 1984.

1984	USA	3 min 19.03 s

4 × 100 Metres Medley Relay

Not held before 1960. Order of strokes: backstroke, breaststroke, butterfly, freestyle.

1960	USA	4 min 05.4 s
1964	USA	3 min 58.4 s
1968	USA	3 min 54.9 s
1972	USA	3 min 48.16 s
1976	USA	3 min 42.22 s
1980	AUS	3 min 45.70 s
1984	USA	3 min 39.30 s

4 × 200 Metres Freestyle Relay

Not held before 1908

1908	GBR	10 min 55.6 s
1912	AUS	10 min 11.6 s
1920	USA	10 min 04.4 s
1924	USA	9 min 53.4 s
1928	USA	9 min 36.2 s
1932	JPN	8 min 58.4 s
1936	JPN	8 min 51.5 s
1948	USA	8 min 46.0 s
1952	USA	8 min 31.1 s
1956	AUS	8 min 23.6 s
1960	USA	8 min 10.2 s
1964	USA	7 min 52.1 s
1968	USA	7 min 52.3 s
1972	USA	7 min 35.78 s
1976	USA	7 min 23.22 s
1980	URS	7 min 23.50 s
1984	USA	7 min 15.69 s

Highboard Diving

Not held before 1904. In 1904 and 1908 this was a combined highboard and springboard event. In 1928 Desjardins gained a superior aggregate of placings to Simaika although the latter gained more points.

1904	G. Sheldon USA	12.66 pts
1908	H. Johansson SWE	83.75 pts
1912	E. Adlerz SWE	73.94 pts
1920	C. Pinkston USA	100.67 pts
1924	A. White USA	97.46 pts
1928	P. Desjardins USA	98.74 pts
1932	H. Smith USA	124.80 pts
1936	M. Wayne USA	113.58 pts
1948	S. Lee USA	130.05 pts
1952	S. Lee USA	156.28 pts
1956	J. Capilla Perez MEX	152.44 pts
1960	R. Webster USA	165.56 pts
1964	R. Webster USA	148.58 pts
1968	K. Dibiasi ITA	164.18 pts
1972	K. Dibiasi ITA	504.12 pts
1976	K. Dibiasi ITA	600.51 pts
1980	F. Hoffmann GDR	835.650 pts
1984	M. Rourke CAN	60.75 pts

Springboard Diving

Not held before 1908

1908	Albert Zurner GER	85.5 pts
1912	P. Gunther GER	79.23 pts
1920	L. Kuehn USA	675.40 pts
1924	A. White USA	696.40 pts
1928	P. Desjardins USA	185.04 pts
1932	M. Galitzen USA	161.38 pts
1936	R. Degener USA	163.57 pts
1948	B. Harlan USA	163.64 pts
1952	D. Browning USA	205.29 pts
1956	R. Clotworthy USA	159.56 pts
1960	G. Tobian USA	170.00 pts
1964	K. Sitzberger USA	159.90 pts
1968	B. Wrightson USA	170.15 pts
1972	V. Vasin URS	594.09 pts
1976	P. Boggs USA	619.05 pts
1980	A. Portnov URS	905.025 pts
1984	G. Louganis USA	754.41 pts

Water Polo

Not held before 1900

1900	GBR
1904	USA
1908	GBR
1912	GBR
1920	GBR
1924	FRA
1928	GER
1932	HUN
1936	HUN
1948	ITA
1952	HUN
1956	HUN
1960	ITA
1964	HUN
1968	YUG
1972	URS
1976	HUN
1980	URS
1984	YUG

SWIMMING AND DIVING (WOMEN)

100 Metres Freestyle

Not held before 1912.

1912	F. Durack AUS	1 min 22.2 s
1920	E. Bleibtrey USA	1 min 13.6 s
1924	E. Lackie USA	1 min 12.4 s
1928	A. Osipowich USA	1 min 11.0 s
1932	H. Madison USA	1 min 06.8 s
1936	H. Mastenbroek HOL	1 min 05.9 s
1948	G. Andersen DEN	1 min 06.3 s
1952	K. Szoke HUN	1 min 06.8 s
1956	D. Fraser AUS	1 min 02.0 s
1960	D. Fraser AUS	1 min 01.2 s
1964	D. Fraser AUS	59.5 s
1968	J. Henne USA	1 min 00.0 s
1972	S. Neilson USA	58.59 s
1976	K. Ender GDR	55.65 s
1980	B. Krause GDR	54.79 s
1984	C. Steinseifer USA & N. Hogshead USA	55.92 s

200 Metres Freestyle

Not held before 1968

1968	D. Meyer USA	2 min 10.5 s
1972	S. Gould AUS	2 min 03.56 s
1976	K. Ender GDR	1 min 59.26 s
1980	B. Krause GDR	1 min 58.33 s
1984	M. Wayte USA	1 min 59.23 s

400 Metres Freestyle

Not held before 1920. In 1920 the distance was 300 m (328 yd 4 in).

1920	E. Bleibtrey USA	4 min 34.0 s
1924	M. Norelius USA	6 min 02.2 s
1928	M. Norelius USA	5 min 42.8 s
1932	H. Madison USA	5 min 28.5 s
1936	H. Mastenbroek HOL	5 min 26.4 s
1948	A. Curtis USA	5 min 17.8 s
1952	V. Gyenge HUN	5 min 12.1 s
1956	L. Crapp AUS	4 min 54.6 s
1960	C. Von Saltza USA	4 min 50.6 s
1964	V. Duenkel USA	4 min 43.3 s
1968	O. Meyer USA	4 min 31.8 s
1972	S. Gould AUS	4 min 19.04 s
1976	P. Thumer GDR	4 min 09.89 s
1980	I. Diers GDR	4 min 08.76 s
1984	T. Cohen USA	4 min 07.10 s

800 Metres Freestyle

Not held before 1968

1968	D. Meyer USA	9 min 24.0 s
1972	K. Rothhammer USA	8 min 53.68 s
1976	P. Thumer GDR	8 min 37.14 s

1980	M. Ford AUS	8 min 28.90 s
1984	T. Cohen USA	8 min 24.95 s

100 Metres Backstroke

Not held before 1924.

1924	S. Bauer USA	1 min 23.2 s
1928	M.J. Braun HOL	1 min 22.0 s
1932	E. Holm USA	1 min 19.4 s
1936	D. Senff HOL	1 min 18.9 s
1948	K.M. Harup DEN	1 min 14.4 s
1952	J. Harisson SAF	1 min 14.3 s
1956	J. Grinham GBR	1 min 12.9 s
1960	L. Burke USA	1 min 09.3 s
1964	C. Ferguson USA	1 min 07.7 s
1968	K. Hall USA	1 min 06.2 s
1972	M. Belote USA	1 min 05.78 s
1976	U. Richter GDR	1 min 01.83 s
1980	R. Reinisch GDR	1 min 00.86 s
1984	T. Andrews USA	1 min 02.55 s

200 Metres Backstroke

Not held before 1968

1968	L. Watson USA	2 min 24.8 s
1972	M. Belote USA	2 min 19.19 s
1976	U. Richter GDR	2 min 13.43 s
1980	R. Reinisch GDR	2 min 11.77 s
1984	J. de Rover HOL	2 min 12.38 s

100 Metres Breaststroke

Not held before 1968

1968	D. Bjedov YUG	1 min 15.8 s
1972	C. Carr USA	1 min 13.58 s
1976	H. Anka GDR	1 min 11.16 s
1980	U. Geweniger GDR	1 min 10.22 s
1984	P. Van Staveren HOL	1 min 09.88 s

200 Metres Breaststroke

Not held before 1924

1924	L. Morton GBR	3 min 33.2 s
1928	H. Schrader GER	3 min 12.6 s
1932	C. Dennis AUS	3 min 06.3 s
1936	H. Maehata JPN	3 min 03.6 s
1948	P. van Vliet HOL	2 min 57.2 s
1952	E. Szekely HUN	2 min 51.7 s
1956	U. Happe GER	2 min 53.1 s
1960	A. Londsbrough GBR	2 min 49.5 s
1964	G. Prosumenshchikova URS	2 min 46.4 s
1968	S. Wichman USA	2 min 44.4 s
1972	B. Whitfield AUS	2 min 41.71 s
1976	M. Koshevaia URS	2 min 33.35 s
1980	L. Kachushite URS	2 min 29.54 s
1984	A. Ottenbrite CAN	2 min 30.28 s

100 Metres Butterfly

Not held before 1956

1956	S. Mann USA	1 min 11.0 s
1960	C. Schuler USA	1 min 09.5 s
1964	S. Stouder USA	1 min 04.7 s
1968	L. McClements AUS	1 min 05.5 s
1972	M. Aoki JPN	1 min 03.34 s
1976	K. Ender GDR	1 min 00.13 s
1980	C. Metschuck GDR	1 min 00.42 s
1984	M.T. Meagher USA	59.26 s

200 Metres Butterfly

Not held before 1968

1968	A. Kok HOL	2 min 24.7 s
1972	K. Moe USA	2 min 15.57 s
1976	A. Pollack GDR	2 min 11.41 s
1980	I. Geissler GDR	2 min 10.44 s
1984	M.T. Meagher USA	2 min 06.90 s

200 Metres Inndividual Medley

Not held before 1968. Order of strokes: butterfly, backstroke, breaststroke, freestyle.

1968	C. Kolb USA	2 min 24.7 s
1972	S. Gould AUS	2 min 23.07 s
1976 and 1980	Not held	
1984	T. Caulkins USA	2 min 12.64 s

400 Metres Individual Medley

Not held before 1964. Order of strokes: butterfly, backstroke, breaststroke, freestyle.

1964	D. De Varona USA	5 min 18.7 s
1968	C. Kolb USA	5 min 08.5 s
1972	G. Neall AUS	5 min 02.97 s
1976	U. Tauber GDR	4 min 42.77 s
1980	P. Schneider GDR	4 min 36.29 s
1984	T. Caulkins USA	4 min 39.24 s

4×100 Metres Freestyle Relay

Not held before 1912

1912	GBR	5 min 52.8 s
1920	USA	5 min 11.6 s
1924	USA	4 min 58.8 s
1928	USA	4 min 47.6 s
1932	USA	4 min 38.0 s
1936	HOL	4 min 36.0 s
1948	USA	4 min 29.2 s
1952	HUN	4 min 24.4 s
1956	AUS	4 min 17.1 s
1960	USA	4 min 08.9 s
1964	USA	4 min 03.8 s
1968	USA	4 min 02.5 s
1972	USA	3 min 55.19 s
1976	USA	3 min 44.82 s
1980	GDR	3 min 42.71 s
1984	USA	3 min 43.43 s

4×100 Metres Medley Relay

Not held before 1960. Order of strokes: backstroke, breaststroke, butterfly, freestyle.

1960	USA	4 min 41.1 s
1964	USA	4 min 33.9 s
1968	USA	4 min 28.3 s
1972	USA	4 min 20.75 s
1976	GDR	4 min 07.95 s
1980	GDR	4 min 06.67 s
1984	USA	4 min 08.34 s

Highboard Diving

Not held before 1912. In 1924 Smith gained a superior aggregate of placings to Becker although the latter gained more points.

1912	G. Johansson SWE	39.90 pts
1920	S(Clausen) Fryland DEN	34.60 pts
1924	C. Smith USA	33.20 pts
1928	E. (Becker) Pinkston USA	31.60 pts
1932	D. (Poynton) Hill USA	40.26 pts
1936	D. (Poynton) Hill USA	33.93 pts
1948	V. Draves USA	68.87 pts
1952	P. McCormick USA	79.37 pts
1956	P. McCormick USA	84.85 pts
1960	I. (Kramer) Engel GER	91.28 pts
1964	L. Bush USA	99.80 pts
1968	M. Duchkova TCH	09.59 pts
1972	U. Knape SWE	390.00 pts
1976	E. Vaytsekhovskaya URS	406.59 pts
1980	M. Jaschke GDR	596.250 pts
1984	J. Zhou CHN	435.51 pts

Springboard Diving

Not held before 1920

1920	A. Riggin USA	539.90 pts
1924	E. Becker USA	474.50 pts
1928	H. Meany USA	78.62 pts
1932	G. Coleman USA	87.52 pts
1936	M. Gestring USA	89.27 pts
1948	V. Draves USA	108.74 pts
1952	P. McCormick USA	147.30 pts
1956	P. Mccormick USA	142.36 pts
1960	I. (Kramer) Engel GER	155.81 pts
1964	I. (Kramer) Engel GER	145.00 pts
1968	S. Gossick USA	150.77 pts
1972	M. King USA	450.03 pts
1976	J. Chandler USA	506.19 pts
1980	I. Kalinina URS	725.910 pts
1984	S. Bernier CAN	530.70 pts

Synchronised Swimming

Not held before 1984

1984	USA	195 584 pts

VOLLEYBALL (MEN)

Not held before 1964

1964	URS
1968	URS
1972	JPN
1976	POL
1980	URS
1984	USA

VOLLEYBALL (WOMEN)

Not held before 1964

1964	JPN
1968	URS
1972	URS
1976	JPN
1980	URS
1984	CHN

WEIGHTLIFTING

Flyweight

Not held before 1972. Weight limit 52 kg (114½ lb).

1972	Z. Smalcerz POL	337.5 kg
1976	A. Voronin URS	242.5 kg
1980	K. Osmanoliev URS	245.0 kg
1984	G. Zheng CHN	235.0 kg

Bantamweight

Not held before 1948. Weight limit 56 kg (123¼ lb).

1948	J. De Pietro USA	307.5 kg
1952	I. Udodov URS	315.0 kg
1956	C. Vinci USA	342.5 kg
1960	C. Vinci USA	345.0 kg
1964	A. Vakhonin URS	357.5 kg
1968	M. Nassiri IRN	367.5 kg
1972	I. Foldi HUN	377.5 kg
1976	N. Nurikyan BUL	262.0 kg
1980	D. Nunez CUB	275.0 kg
1984	Shude Wu CHN	267.5 kg

Featherweight

Not held before 1920. Weight limit 60 kg (132¼ lb).

1920	F. de Haes BEL	220.0 kg
1924	P. Gabetti ITA	402.5 kg
1928	F. Andrysek AUT	287.5 kg
1932	R. Suvigny FRA	287.5 kg
1936	A. Terlazzo USA	312.5 kg
1948	M. Favad EGY	332.5 kg
1952	R. Chimishkian URS	337.5 kg
1956	I. Berger USA	352.5 kg
1960	Y. Minaev URS	372.5 kg
1964	Yoshinobu Miyake JPN	397.5 kg
1968	Yoshinobu Miyake JPN	392.5 kg
1972	N. Nurikyan BUL	402.5 kg
1976	N. Kolesnikov URS	285.0 kg
1980	V. Mazin URS	290.0 kg
1984	W. Chen CHN	282.5 kg

Lightweight

Not held before 1920. Weight limit 67.5 kg (148¾ lb).

1920	A. Neuland EST	257.5 kg
1924	E. Decottignies FRA	440.0 kg
1928	K. Helbig GER & H. Haas AUT	322.5 kg
1932	R. Duverger FRA	325.0 kg
1936	A.M. Mesbah EGY & R. Fein AUT	342.5 kg
1948	I.H. Shams EGY	360.0 kg
1952	T. Kono USA	362.0 kg
1956	I. Rybak URS	380.0 kg
1960	V. Bushuev URS	397.5 kg
1964	W. Baszanowski POL	432.5 kg
1968	W. Baszanowski POL	437.5 kg
1972	M. Kirzhinov URS	460.0 kg
1976	P. Korol URS	305.0 kg
1980	Y. Roussev BUL	342.5 kg
1984	J. Yao CHN	320.0 kg

Middleweight

Not held before 1920. Weight limit 75 kg (165 ¼ lb).

1920	H. Gance FRA	245.0 kg
1924	C. Galimberti ITA	492.5 kg
1928	R. Francois FRA	335.0 kg
1932	R. Ismayr GER	345.0 kg
1936	K. S. el Touni EGY	387.5 kg
1948	F. Spellman USA	390.0 kg
1952	P. George USA	400.0 kg
1956	F. Bogdanovski URS	420.0 kg
1960	A. Kurinov URS	437.5 kg
1964	H. Zdrazila TCH	445.0 kg
1968	V. Kurentsov URS	475.0 kg
1972	Y. Bikov BUL	485.0 kg
1976	Y. Mitkov BUL	335.0 kg
1980	A. Zlatev BUL	360.0 kg
1984	K. Radschinsky GER	340.0 kg

Light Heavyweight

Not held before 1920. Weight limit 82.5 kg (181¾ lb).

1920	E. Cadine FRA	290.0 kg
1924	C. Rigoulot FRA	502.5 kg
1928	S. Nosseir EGY	355.0 kg
1932	L. Hostin FRA	365.0 kg
1936	L. Hostin FRA	372.5 kg
1948	S. Stanczyk USA	417.5 kg
1952	T. Lomakhin URS	417.5 kg
1956	T. Kono USA	447.5 kg
1960	I. Palinski POL	442.5 kg
1964	R. Plyukfelder URS	475.0 kg
1968	B. Selitski URS	485.0 kg
1972	L. Jensen NOR	507.5 kg
1976	V. Shary URS	365.0 kg
1980	Y. Vardanyan URS	400.0 kg
1984	P. Becheru ROM	355.0 kg

Middle Heavyweight

Not held before 1952. Weight limit 90 kg (198¼ lb).

1952	N. Schemansky USA	445.0 kg
1956	A. Vorobev URS	462.5 kg
1960	A. Vorobev URS	472.5 kg
1964	V. Golovanov URS	487.5 kg
1968	K. Kangasniemi FIN	517.5 kg
1972	A. Nikolov BUL	525.0 kg
1976	D. Rigert URS	382.5 kg
1980	P. Baczako HUN	377.5 kg
1984	N. Vlad ROM	392.5 kg

Heavyweight

Not held before 1980. Weight limit 100 kg (220 lb).

1980	O. Zaremba TCH	395.0 kg
1984	R. Milser FRG	385.0 kg

For results before 1972 see Super Heavyweight. Weight limit 110 kg (242½ lb).

1972	Y. Talts URS	580.0 kg
1976	Y. Zaitsev URS	385.0 kg
1980	L. Taranenko URS	422.5 kg
1984	N. Oberburger ITA	390.0 kg

Super Heavyweight

This class was described as Heavyweight until 1972. In 1896 and 1904 two separate competitions were held. (1) one-hand lift and (2) two-hand lift. Weight limits 1896–1904 open; 1920–48 over 82.5 kg (181¾ lb); 1952–68 over 90 kg (198¼ lb); from 1972 over 110 kg (242½ lb).

1896	(1) L. Elliott GBR	71.0 kg
	(2) V. Jensen DEN	111.5 kg
1900	Not held	
1904	(1) O.P. Osthoff USA	48 pts
	(2) P. Kakousis GRE	111.58 kg
1908–1912	Not held	
1920	F. Bottino ITA	270.0 kg
1924	G. Tonani ITA	517.5 kg
1928	J. Strassberger GER	372.5 kg
1932	J. Skobla TCH	380.0 kg
1936	J. Manger GER	410.0 kg
1948	J. Davis USA	452.5 kg
1952	J. Davis USA	460.0 kg
1956	P. Anderson USA	500.0 kg
1960	Y. Vlasov URS	537.5 kg
1964	L. Zhabotinski URS	572.5 kg
1968	L. Zhabotinski URS	572.5 kg
1972	V. Alekseev URS	640.0 kg
1976	V. Alekseev URS	440.0 kg
1980	S. Rakhmanov URS	440.0 kg
1984	D. Lukim AUS	412.5 kg

WRESTLING
FREESTYLE

Not held before 1904. Weight limit 1904 47.6 kg (105 lb); from 1972 48 kg (105 lb 13 oz). In 1904 this weight category was called Light Flyweight.

1904 R. Curry USA
1908–1968 Not held
1972 R. Dmitriev URS
1976 K. Issaev BUL
1980 C. Pollio ITA
1984 R. Weaver USA

Flyweight

Not held before 1904. Weight limit 1904 52.16 kg (115 lb); from 1948 52 kg (114 lb 10 oz). In 1904, this weight category was called 'Bantamweight'.

1904 G. Mehnert USA
1908–1936 Not held
1948 L. Viitala FIN
1952 H. Gemici TUR
1956 M. Tsalkalamanidze URS
1960 A. Bilek TUR
1964 Y. Yoshida JPN
1968 S. Nakata JPN
1972 K. Kato JPN
1976 Y. Takada JPN
1980 A. Beloglazov URS
1984 S. Trstena YUG

Bantamweight

Not held before 1904. Weight limit 1904 56.80 kg (125 lb); 1908 54 kg (119 lb); 1924–36 56 kg (123 lb 7¼ oz); from 1948 57 kg (125 lb 10½ oz). In 1904 this weight category was called 'Featherweight'

1904 I. Niofiot USA
1908 G. Mehnert USA
1912–1920 Not held
1924 K. Pihlajamaki FIN
1928 K.E. Makinen FIN
1932 R. Pearce USA
1936 O. Zombori HUN
1948 N. Akkar TUN
1952 S. Ishii JPN
1956 M. Dagistanli TUR
1960 T. McCann USA
1964 Y. Uetake JPN
1968 Y. Uotake JPN
1972 H. Yanagida JPN
1976 V. Umin URS
1980 S. Beloglazov URS
1984 H. Tomiyama JPN

Featherweight

1904 B. Bradshaw USA
1908 G. Dole USA
1912 Not held
1920 C. Ackerley USA
1924 R. Reed USA
1928 A. Morrison USA
1932 K. Pihlajamaki FIN
1936 K. Pihlajamaki FIN
1948 G. Bilge TUR
1952 B. Sit TUR
1956 S. Sasahara JPN
1960 M. Dagistani TUR
1964 O. Watanabe JPN
1968 M. Kaneko JPN
1972 Z. Abdulbekov URS
1976 J.M. Yang KOR
1980 M. Abushev URS
1984 R. Lewis USA

Lightweight

Not held before 1904. Weight limit 1904

65.77 kg (145 lb); 1908 66.60 kg (146 lb 13¼ oz); 1920 67.50 kg (148 lb 13 oz); 1924–36 66 kg (145 lb 8 oz); 1948–60 67 kg (147 lb 11 ¼ oz); 1964–68 70 kg (154 lb 5 oz); from 1972 68 kg (149 lb 14½ oz). In 1904 this weight category was called 'Light Middleweight'.

1904 O. Roehm USA
1908 G. De Relwyskow GBR
1912 Not held
1920 K. Anttila FIN
1924 R. Vis USA
1928 O. Kapp EST
1932 C. Pacome FRA
1936 K. Karpati HUN
1948 C. Atiki TUR
1952 O. Anderberg SWE
1956 E. Habibi IRN
1960 S. Wilson USA
1964 E. Valchev BUL
1968 A. Movahed Ardabili IRN
1972 D. Gable USA
1976 D. Pinigin URS
1980 S. Absaidov URS
1984 In-Tak You KOR

Welterweight

Not held before 1904. Weight limit 1904 71.67 kg (158 lb); 1924–36 72 kg (158 lb 11½ oz); 1948–60 73 kg (160 lb 15 oz); 1964–68 78 kg (171 lb 15¼ oz); from 1972 74 kg (163 lb 2¼). In 1904 this weight category was called 'Middleweight; in 1924 it was called 'Light Middleweight'.

1904 C. Erikson USA
1908–1920 Not held
1924 H. Gehri SUI
1928 A.J. Haavisto FIN
1932 J. Van Bebber USA
1936 F. Lewis USA
1948 Y. Dogu TUR
1952 W. Smith USA
1956 M. Ikeda JPN
1960 D. Blubaugh USA
1964 I. Ogan TUR
1968 M. Atalay TUR
1972 W. Wells USA
1976 J. Date JPN
1980 V. Raitchev BUL
1984 D. Schultz USA

Middleweight

Not held before 1908. Weight limit 1908 73 kg (161 lb); 1920 75 kg (165 lb 5½ oz); 1924–60 79 kg (174 lb 2¾ oz); 1964–68 87 kg (191 lb 12¾ oz); from 1972 82 kg (180 lb 12½ oz).

1908 S. Bacon GBR
1912 Not held
1920 E. Leino FIN
1924 F. Hagmann SUI
1928 E. Kyburz SUI
1932 I. Johansson SWE
1936 E. Poilve FRA
1948 G. Brand USA
1952 D. Tsimakuridze URS
1956 N. Stanchev BUL
1960 H. Gungor TUR
1964 P. Gardshev BUL
1968 B. Gurevich URS
1972 L. Tediashvili URS
1976 J. Peterson USA
1980 I. Abilov BUL
1984 M. Schultz USA

Light Heavyweight

Not held before 1920. Weight limit 1920 82.5 kg (181 lb 8 oz); 1924–60 87 kg (191 lb 12¾ oz); 1964–68 97 kg (213 lb 13½ oz); from 1972 90 kg (198 lb 6¾ oz).

1920 A. Larsson SWE
1924 J. Spellman USA
1928 T. Sjostedt SWE
1932 P. Mehringer USA
1936 K. Fridell SWE
1948 H. Wittenberg USA
1952 V. Palm SWE
1956 G.R. Takhti IRN
1960 A. Atli TUR
1964 A. Medved URS
1968 A. Ayik TUR
1972 B. Peterson USA
1976 L. Tediashvili URS
1980 S. Oganesyan URS
1984 E. Banach USA

Heavyweight

Not held before 1904. Weight limit 1904 over 71.67 kg (158 lb); 1908 over 73 kg (161 lb); 1920 over 82.5 kg (181 lb 14 oz); 1924–60 over 87 kg (191 lb 12¾ oz); 1964–68 over 97 kg (213 lb 13½ oz); from 1972under 100 kg (200 lb 7¼ oz).

1904 B. Hansen USA
1908 G.C. O'Kelly GBR/IRL
1912 Not held
1920 R. Roth SUI
1924 H. Steele USA
1928 J. Richthoff SWE
1932 J. Richthoff SWE
1936 K. Palusalu EST
1948 G. Bobis HUN
1952 A. Mekokishvili URS
1956 H. Kaplan TUR
1960 W. Dietrich GER
1964 A. Ivanitski URS
1968 A. Medved URS
1972 I. Yarygin URS
1976 I. Yarygin URS
1980 I. Mate URS
1984 L. Banach USA

Super Heavyweight

Not held before 1972. Weight limit over 100 kg (220 lb 7¼ oz).

1972 A. Medved URS
1976 S. Andiev URS
1980 S. Andiev URS
1984 B. Baumgartner USA

WRESTLING GRECO-ROMAN STYLE

Light Flyweight

Not held before 1972. Weight limit under 48 kg (105 lb 13 oz)

1972 G. Berceanu ROM
1976 A. Shumakov URS
1980 Z. Ushkempirov URS
1984 V. Maenza ITA

Flyweight

Not held before 1948. Weight limit under 52 kg (114 lb 10¼ oz).

1948 P. Lombardi ITA
1952 B. Gurevich URS
1956 N. Solovyev URS
1960 D. Pirvulescu ROM
1964 T. Hanahara JPN
1968 P. Kirov BUL
1972 P. Kirov BUL
1976 V. Kostanjinov URS
1980 V. Blagidze URS
1984 A. Miyahara JPN

Bantamweight

Not held before 1924. Weight limit 1924-28 under 58 kg (128 lb); 1932-36 under 56 kg (123 lb 7½ oz); from 1948 under 57 kg (125 lb 10½ oz).

1924 E. Putsep EST
1928 K. Leucht GER
1932 J. Brendel GER
1936 M. Lorincz HUN
1948 K. Pettersen SWE
1952 I. Hodes HUN
1956 K. Vyrupaev URS
1960 O. Karavaev URS
1964 M. Ichiguchi JPN
1968 J. Varga HUN
1972 R. Kazakov URS
1976 P. Ukkola FIN
1980 S. Serikov URS
1984 P. Passarelli GER

Featherweight

Not held before 1912. Weight limit 1912-20 60 kg (132 lb 4½ oz); 1924-28 62 kg (136 lb 11 oz); 1932-36 61 kg (134 lb 7¾ oz); 1948-60 62 kg (136 lb 11 oz); 1964-68 63 kg (138 lb 14½ oz); from 1972 62 kg (136 lb 11 oz).

1912 K. Koskelo FIN
1920 O. Friman FIN
1924 K. Anttila FIN
1928 V. Vali EST
1932 G. Gozzi ITA
1936 Y. Erkan TUR
1948 M. Oktav TUR
1952 Y. Punkin URS
1956 R. Makinen FIN
1960 M. Sille TUR
1964 I. Polyak HUN
1968 R. Rurura URS
1972 G. Markov BUL
1976 K. Lipien POL
1980 S. Migiakis GRE
1984 Weon-Kee Kim KOR

Lightweight

Not held before 1908. Weight limit 1908 66.6 kg (147 lb); 1912-28 67.5 kg (148 lb 13 oz); 1932-36 66 kg (145 lb 8 oz); 1948-60 67 kg (147 lb 11¼ oz); 1964-68 70 kg (154 lb 5 oz); from 1972 68 kg (149 lb 14½ oz).

1908 E. Porro ITA
1912 E. Vare FIN
1920 E. Vare FIN
1924 O. Friman FIN
1928 L. Keresztes HUN

1932 E. Malmberg SWE
1936 L. Koskela FIN
1948 G. Freij SWE
1952 S. Safin URS
1956 K. Lehtonen FIN
1960 A. Koridze URS
1964 K. Ayvaz TUR
1968 M. Munemura JPN
1972 S. Khisamutdinov URS
1976 S. Nalbandyan URS
1980 S. Rusu ROM
1984 V. Lisjak YUG

Welterweight

Not held before 1932. Weight limit 1932-36 72 kg (158 lb 11¾ oz); 1948-60 73 kg (160 lb 15 oz); 1964-68 78 kg (171 lb 15½ oz); from 1972 74 kg (163 lb 2¼ oz).

1932 I. Johansson SWE
1936 R. Svedberg SWE
1948 G. Andersson SWE
1952 M. Szilvasi HUN
1956 M. Bayrak TUR
1960 M. Bayrak TUR
1964 A. Koleslov URS
1968 R. Vesper GDR
1972 V. Macha TCH
1976 A. Bykov URS
1980 F. Kocsis HUN
1984 J. Salomaki FIN

Middleweight

Not held before 1908. Weight limit 1908 73 kg (161 lb); 1912-28 75 kg (165 lb 5¾ oz); 1932-60 79 kg (174 lb 2¾ oz); 1964-68 87 kg (191 lb 12¾ oz); from 1972 82 kg 180 lb 12½ oz). In 1912 this weight category was called 'Middleweight A'; in 1928 'Welterweight'.

1908 F. Martensson SWE
1912 C. Johansson SWE
1920 C. Westergren SWE
1924 E. Westerlund FIN
1928 V. Kokkinen FIN
1932 V. Kokkinen FIN
1936 I. Johansson SWE
1948 A. Gronberg SWE
1952 A. Gronberg SWE
1956 G. Kartozia URS
1960 D. Dobrev BUL
1964 B. Simic YUG
1968 L. Metz GDR
1972 C. Hegedus HUN
1976 M. Petkovic YUG
1980 G. Korban URS
1984 I. Draica ROM

Light Heavyweight

Not held before 1908. Weight limit 1908 93 kg (205 lb); 1912-28 82.5 kg (181 lb 14 oz); 1932-60 87 kg (191 lb 12¾ oz); 1964-68 97 kg (213 lb 13¾ oz); from 1972 90 kg (198 lb 6¾ oz). In 1912 this weight category was called 'Middleweight B'; in 1928 'Middleweight'.

1908 V. Weckman FIN
1912 Not awarded
1920 C. Johansson SWE
1924 C. Westergren SWE
1928 I. Mustafa EGY
1932 R. Svensson SWE
1936 A. Cadier SWE
1948 K. E. Nilsson SWE
1952 K. Grondahl FIN
1956 V. Nikolaev URS
1960 T. Kis TUR
1964 B. Radev (Aleksandrov) BUL
1968 B. Radev BUL
1972 V. Rezantsev URS
1976 V. Rezantsev URS
1980 N. Nottny HUN
1984 S. Fraser (USA)

Heavyweight

Weight limit 1896 none; 1908 over 93 kg (205 lb); 1912-28 over 82.5 kg (181 lb 14 oz); 1932-60 over 87 kg (191 lb 12¾ oz); 1964-68 over 97 kg (213 lb 13¾ oz); from 1972 under 100 kg (220 lb 7¼ oz).

1896 C. Schuhmann GER
1900-1904 Not held
1908 R. Weisz HUN
1912 Y. Saarela FIN
1920 A. Lindfors FIN
1924 H. Deglane FRA
1928 J. R. Svensson SWE
1932 C. Westergren SWE
1936 K. Palusalu EST
1948 A. Kirecci TUR
1952 Y. Kotkas URS
1956 A. Parfenov URS
1960 I. Bogdan URS
1964 I. Kozma HUN
1968 I. Kozma HUN
1972 N. Martinescu ROM
1976 N. Bolboshin URS
1980 G. Raikov BUL
1984 V. Andrei ROM

Super Heavyweight

Not held before 1972. Weight over 100 kg (220 lb 7¼ oz).

1972 A. Roshchin URS
1976 A. Kolchinski URS
1980 A. Kolchinski URS
1984 J. Blatnick USA

YACHTING

5.5 Metres

Not held before 1952.

1952 USA	5,751 pts
1956 SWE	5,527 pts
1960 USA	6,900 pts
1964 AUS	5,981 pts
1968 SWE	8.0 pts
1972-1984 Not held	

Tempest

Not held before 1972.

1972 URS	28.1 pts
1976 SWE	14.00 pts
1980-1984 Not held.	

Soling

Not held before 1972.

1972 USA	8.7 pts
1976 DEN	46.70 pts
1980 DEN	23.00 pts
1984 USA	33.70 pts

Flying Dutchman

Not held before 1960.

1960 NOR	6,774 pts
1964 NZL	6,255 pts
1968 GBR	3.0 pts
1972 GBR	22.7 pts
1976 GER	34.70 pts
1980 ESP	19.00 pts
1984 USA	19.70 pts

Dragon

Not held before 1948.

1948 NOR	4,746 pts
1952 NOR	6,130 pts
1956 SWE	5,723 pts
1960 GRE	6,733 pts
1964 DEN	5,854 pts
1968 USA	6.0 pts
1972 AUS	13.7 pts
1976-1984 Not held.	

Star

Not held before 1932.

1932 USA	46 pts
1936 GER	80 pts
1948 USA	5,828 pts
1952 ITA	7,635 pts
1956 USA	5,876 pts
1960 URS	7,619 pts
1964 BAH	5,664 pts
1968 USA	14.4 pts
1972 AUS	28.1 pts
1976 Not held.	
1980 URS	24.70 pts
1984 USA	29.70 pts

Tornado

Not held before 1976.

1976 GBR	18 pts
1980 BRA	21.40 pts
1984 NZL	14.70 pts

Finn

Not held before 1924. This single-handed class was not for Finn boats until 1952; before then it was for various types.

1924 L. Huybrechts BEL	2 pts
1928 S. Thorell SWE	nda
1932 J. Lebrun FRA	87 pts
1936 D. M. J. Kagchelland HOL	163 pts
1948 P. ElvstrØm DEN	5,543 pts
1952 P. ElvstrØm DEN	8,209 pts
1956 P. ElvstrØm DEN	7,509 pts
1960 P. ElvstrØm DEN	8,171 pts
1964 W. Kuhweide GER	7,638 pts
1968 V. Mankin URS	11.7 pts
1972 S. Maury FRA	58.0 pts
1976 J. Shumann GDR	35.40 pts
1980 E. Rechardt FIN	36.70 pts
1984 R. Coutts NZL	34.70 pts

470

Not held before 1976.

1976 GER	42.40 pts
1980 BRA	36.40 pts
1984 ESP	33.70 pts

Windglider

Not held before 1984.

1984 S. Van Den Berg HOL	27.70 pts

1992 Olympics: Barcelona Gets Facelift

As with any city undergoing a facelift, **Barcelona** has friends who think it is beautiful the way it is.

Yet, in the eager hands of its post-Franco planners, this bustling metropolis is undergoing an enormous physical renaissance.

When the Olympic Games open in Barcelona in 1992, a far-reaching municipal programme will have created or rehabilitated more than 200 parks, plazas and streets and commissioned or reconstructed more than 50 works of sculpture.

The bold aesthetic refurbishing stems from a master plan to correct decades of neglect, building speculation and even destruction of some older areas.

"In Franco's last days a master plan was developed, by architects and engineers not belonging to his political structure, and it was quite good," said Oriol Bohigas, the architect who heads Barcelona's planning corps. "What we did was to give it a more modern and democractic thrust."

The renewal programme goes back to 1979, when the new Socialist city administation, then headed by Mayor Narcis Serra (now minister of defense), took office.

The rehabilitation covers the metropolitan area.

North to south, it extends from the new Velodrome, the bicycle race track at the foot of Collcerola Mountain, to the waterfront quay known as El Moll de la Fusta

East to west, it runs from El Fossar de la Pedrera, a park commemorating victims of Franco's forces after the Civil War, to the Via Julia, a new promenade tht enchances an area of nondescript buildings hastily put up by developers.

The boulevard boasts the work of young Catalan sculptors, among them Sergi Aguilar, whose towering minimalist triangle serves as a juncture for the boulevard's two sections.

"Our idea of urbanism is not to impose a utopian plan on the city," Mr. Bohigas said. "Nor do we want the kind of monumental undertakings developed by the Franco regime. We believe in working with specific projects, real elements in actual neighbourhoods."

According to figures supplied by the mayor's office, the total spent for construction and improvement of urban parks and public spaces from 1983 to 1987 amounts to more than $50 million.

"In the past the budget was used to develop large-scale projects that served as monuments to the former regime," Mr. Bohigas said. "Now we use it for things like gardens that are cheap by comparision."

In this sports-minded city, the planners' biggest undertaking is the complex of Olympic facilities. But they see the games as far more than athletic events.

Apart from the arena being built on Montjuich, a hill in the eastern part of the city, there will be an Olympic Village on more than 87 acres (35 hectares) near the sea. It was designed by Mr. Bohigas and Lluis Cantallops to transform the rundown area of Pueblo Nuevo and increase the city's limited access to its occeanfront.

As part of the rehabilitation, the city has been gener-

ous in commissioning not only Spanish artists but also those of other countries. Included are some well-known American sculptors, including Richard Serra, Bryan Hunt, Ellsworth Kelly, Beverly Pepper, Claes Oldenburg and Roy Lichtenstein.

Richard Meier, An American architect, has been asked to design a contemporary museum and to redo the plaza it will face as part of a revitalization of Las Ramblas, one of Barcelona's loveliest promenades

Gae Aulenti, an Italian designer, will redo the interior of the National Palace, a kitschy relic of the 1929 International Exposition that now houses a museum of Catalan art. Last year, the famous Barcelona Pavilion, also built for the exposition — and designed by Mies van der Rohe — was reconstructed.

The projects in which contemporary sculptors are participating include the tiny Plaza de Sants, the end of a major boulevard that now boasts a semiabstract sculpture of a bicycle rider by Jorge Castillo.

At the other end of the scale are recreation areas such as the Parque de la Espana Industrial, a post-modern extravaganza designed by Luis Pena Ganchegui, a Basque architect, and built on the site of an old textile mill near the central rail-road station. A terraced composition of waterfalls includes a dragon sculpture by Andres Nagel that serves as a water chute for children; a "woods" with various kinds of trees shelters works by Anthony Caro, an English sculptor, and others.

Tribute also is being paid to the work of earlier artists. One of the grandest of these is the memorial by Joeph Llimona, a turn-of-the-century Catalan sculptor, to Dr. Bartolome Robert, a former mayor of Barcelona. A symbol of Catalan unity, the sculpture was dismantled during the Franco regime. Now the city's Socialist government has restored it to full glory and placed it on the remodelled Plaza Tetuan

The planners believe that what they call the monumentalization of Barcelona enhances the residents' sense of place by adding to the distinctive identity of each neighbourhood. **(New York Times)**

LOOKING BACK ON 1987

International Events

JANUARY

1. Campus demonstrations in China for greater democracy strengthens.

3. The Liberation Tigers of Tamil Eelam announces that it has effectively taken over the civil administration in the North of Sri Lanka.

5. Beijing sudents make bonfire of official daily; Soviet Union wins the Nehru Gold Cup International Football Tournament for the third year in succession at Calicut.

15. The group of 77, comprising 127 nations, elects Guatemala to chair the Third World economic grouping in 1987.

16. The Chinese Communist Party General Secretary, Hu Yaobang, 72, resigns. Prime Minister Zhao Ziyang succeeds; King Birendra opens the secretariat of the SAARC at Kathmandu. Mr. Abdul Absan of Bangladesh takes over as the first Secretary-General of SAARC; Ecuador President Leon Febreu Cordero kidnapped by paratroopers, but later released in exchange for the freedom of arrested rebel, Gen. Frank Vargas Pazos.

21. New Austrian Government, headed by Socialist Party leader, Franz Vranitzky sworn in.

25. Africa Fund is launched in New Delhi with an opening fund of $ 70 m.

26. Fresh mandate for Dr. Helmut Kohl in West German elections.

31. Three American Professors and Prof. Mithileshwar Singh, an Indian born US resident are kidnapped by terrorists in Beirut.

FEBRUARY

2. President Corazon Aquino wins landslide victory in a plebicite for a new constitution; CIA Chief William E. Casey steps down on account of ill-health. His deputy Robert Gates replaces him; Thriller-writer Alistair Maclean, 64, is dead; Hollywood celebrates its 100th birth-day.

5. The Soviet Union decides to resume nuclear tests following tests by the US at Nevada on February 3.

6. India and Canada sign extradition treaty.

7. Japan recognizes African National Congress.

8. Osel Iza Torres, the 27-year old Spanish boy considered to be the reincarnation of Lama Yeshe passes through New Delhi on his way to Nepal to take the place of the late Lama; Philippine Govt. Commission officially approves the new constitution.

10. The Islamic Jihad for the liberation of Palestine extends the deadline for killing the three US and one Indian hostages. Former US National Security Advisor Robert C. McFarlane (who figured prominently in President Reagan's clandestine sale of weapons to Iran) takes an overdose of sleeping pills and gets hospitalized.

11. In Pakistan, opposition leaders voice disagreement on the accord with India by the govt. on military withdrawals; India suspends mediatory efforts in Sri Lanka until the Sri Lanka govt. takes steps to diffuse the tense situation consequent to the economic blockade and military action in Tamil majority areas; Philippine's President promulgates a new constitution restoring democracy.

12. Russia offers Pakistan no-war pact with India and increased economic aid in return for a settlement of problems with Afghanistan.

14. Iraq threatens total war against Iran.

15. Sri Lankan Tamil rebel leader discloses that more than 200 Tamil militants committed suicide by swallowing ampoules of Potassium Cynaide to avoid capture by army.

17. In Vietnam, 13 veterans fired in a major shake-up of government body.

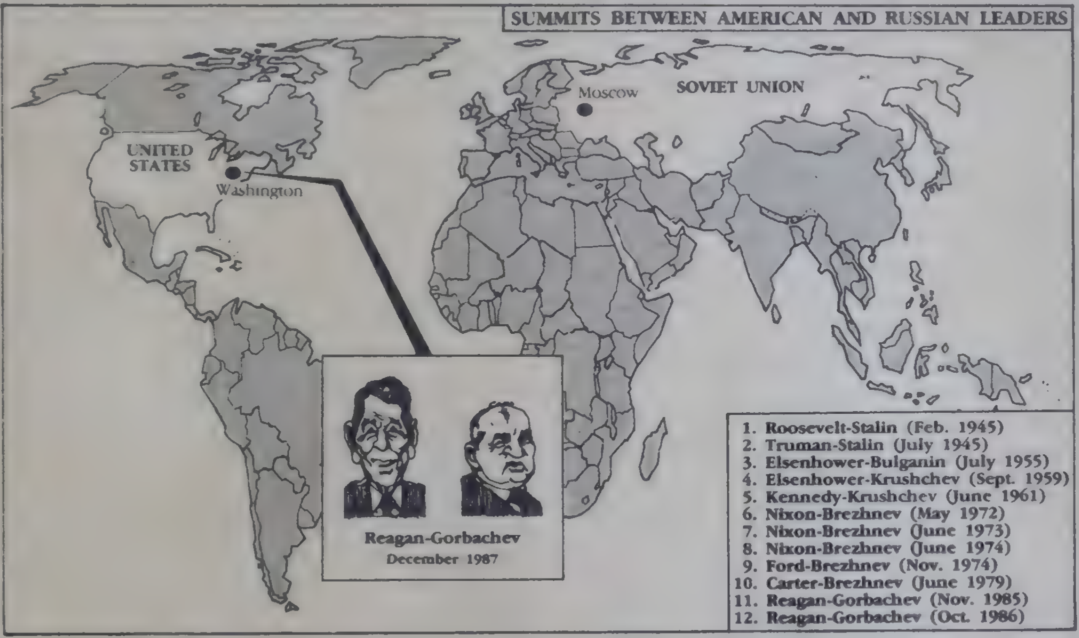
19. Sri Lankan President, Jayawardane declares peace talks with militants will be held only in the presence of India.

21. Pakistan President Gen. Zia arrives in India; USSR decides to resume nuclear tests.

23. Pakistan President Zia says in Islamabad that he would welcome India sealing Punjab border with Pakistan to check terrorists' entry to Pakistan.

24. Sri Lanka lodges a complaint regarding President Zail Singh's criticism of the Sri Lankan Government handling of the Tamil issue.

26. Reagan administration assures Congress that US military aid to Pakistan would not disturb the military balance in the sub-continent; USSR blasts nuclear device ending self-imposed ban for 18 months.



SUMMITS BETWEEN AMERICAN AND RUSSIAN LEADERS

Reagan-Gorbachev
December 1987

1. Roosevelt-Stalin (Feb. 1945)
2. Truman-Stalin (July 1945)
3. Eisenhower-Bulganin (July 1955)
4. Eisenhower-Krushchev (Sept. 1959)
5. Kennedy-Krushchev (June 1961)
6. Nixon-Brezhnev (May 1972)
7. Nixon-Brezhnev (June 1973)
8. Nixon-Brezhnev (June 1974)
9. Ford-Brezhnev (Nov. 1974)
10. Carter-Brezhnev (June 1979)
11. Reagan-Gorbachev (Nov. 1985)
12. Reagan-Gorbachev (Oct. 1986)

Historic Treaty: The Treaty for the elimination of all Pershing and ground-launched missiles of the US and 1500 ground-launched missiles including that of intermediate range and new SS-20 missiles of the USSR was signed on Dec. 8 at Washington between President Ronald Reagan and General Secretary Mikhail Gorbachev.

Toll of the War 7000 lives

The four-year-old ethnic war has claimed at least 7,000 lives and caused more than two billion US dolars in financial damage to Sri Lanka, the World Bank says.

The toll was about a 1,000 higher than the previously announced Government figure of the dead and the missing.

The survey was made in September. Fighting since then has claimed at least 1,540 more lives, according to Sri Lankan Government and security officials.

Mr. George West, World Bank resident representative in Colombo says the bank team visited the country "to assess reconstruction needs". International agencies and donor nations are expected to meet to discuss financial aid for Sri Lanka

Finance Minister Ronnie de Mel said on State-run television, that Sri Lanka would need upto 100 billion rupees over the next three years for reconstruction and youth employment programmes.

The World Bank survey team estimated that more than 70,000 homes have been destroyed and 30,000 damaged. As a result, some 50,000 people are without permanent shelter, it said

The damage to homes was estimated at nearly 100 million dollars. They survey also said 2000 commercial buildings were destroyed and more than 3,300 damaged, for a total loss of about 23 million dollars.

Among the largest war costs were lost income in primary industries, the bank said. It estimated lost tourism revenue at about 200 million dollars and lost foreign investment at 250 million dollars. Sharp decline in agriculture and fishing harvests and sales were put at 250 million dollars.

27. White House Chief of Staff Donald Reagan is replaced by former Republican Senator, Howard Baker.

28. Gorbachev offers separate deal to remove medium-range missiles from Europe.

MARCH

1. Pakistan's top nuclear scientist Dr. Abdel Kadar Khan discloses in an interview with a London newspaper that his country has Atom Bombs.

3. United States agrees to sell super computers to India. Hollywood star, Danny Kaye, 74, dies. Bettino Craxi Govt. in Italy resigns.

5. President Reagan admits that Iran arms deal was a mistake.

6. Senate Committee urges President Reagan to withhold military aid to Pakistan till that country gives an assurance that it is not making a nuclear bomb; A British ferry with 543 people aboard capsize's in North-sea harbour, nearly 100 die.

11. Pakistan and Afghanistan move closer on an agreement on Soviet troop withdrawal from Afghanistan.

12. US House of Representatives votes to freeze $ 40 million in aid for the contras for six months; Soviet Union reports about its second nuclear explosion.

13. Sri Lankan Government relaxes fuel embargo on Jaffna to allow movement of firewood.

16. India asks Sri Lanka to lift the economic blockade against Tamils in Sri Lanka.

20. US naval ships move to within striking distance of Iranian missile batteries.

22. President Zia says Pakistan has the capability to make nuclear bombs.

25. Willy Brandt, 73, resigns as the chairman of West Germany's opposition Social Democrat.

27. Talks between India and Pakistan to diffuse border tension begins in Islamabad.

28. US—Japanese trade war hots-up; Reagan imposes 100% import tax on Japanese electronic goods.

29. Sri Lanka Government wages massive scale aerial artillery and naval bombardment on Jaffna.

APRIL

1. Angolan President Jose Eduardo dos Santos arrives in India on a 3-day visit; Arab League resents PM Rajiv's remark that Pak bomb will also be available to Arab countries.

2. According to official spokeman, upto Feb. 16, 1987 refugees numbering 128570 have arrived from Sri Lanka to India. Of this 6513 have returned. Italian President Cossiga recalls Socialist leader Bettino Craxi as Prime Minister as the five party coalition fails to form a government.

5. US decides to give most modern tanks to Pakistan; Nepal introduces work permit system to Indian and Tibetan workers; Pakistan Prime Minister Junejo says that his country has no plans to make a nuclear bomb.

10. Colombo offers 10-day ceasefire to pave way for peaceful settlement with militants; US dollar slumps again in Tokyo.

15. US spokesman speaks to Indian newsmen that on the basis of intelligence reports available with the US, Pakistan does not have any nuclear bomb.

17. Swedish State Radio reports that the arms firm Bofors won Sweden's biggest export order from India by bribing Indian politicians and officials; Militants kill 107 passengers in Sri Lanka.

18. India condemns Sri Lankan massacre.

19. In Sweden a parliamentary committee begins probe in govt's role in regard to illegal arms trade with Iran by Bofors; Colombo sacks soldiers having link with pro-Sinhala extremist organization (Janata Vimukti Peramuna).

19. In Pakistan, ethnic riot breaks out and 7 shot dead by police; Sri Lankan President issues ultimatum to Tamil militants to come for negotiations; US is reported to be trying with Soviet co-operation to stop developing countries especially India, from building ballistic missile system.

21. More than 200 persons feared killed when a bomb allegedly placed by Tamil extremists in an autorikshaw exploded at Colombo; Swedish government orders probe into the alleged payment of commission to Indian politicians and officials by Swedish arm manufacturer, Bofors.

22. Sri Lankan planes bomb Jaffna causing more than 200 casualties.

23. Swedish armaments firm Bofors tells government of India than no payment was made to anybody in arms deals. Communist Party of Soviet Union proposes to send emissaries to India to brief CPI & CPM on the resolutions adopted at the 27th party congress in Moscow.

24. Sri Lankan Government calls off peace efforts and declares all-out war on rebels.

28. Sri Lanka reacts strongly on Tamil Nadu's Rs. 4 crore aid to Sri Lankan Tamils; Australian President Kurt Waldheim denied entry to US because of evidence that he persecuted people during the second world war; BBC cancels its 21 year old Urdu and Hindi programmes.

29. Government announces relief to the extent of Rs. 70 crores in budget proposals; Canada too bans entry of Dr. Kurt Waldheim.

MAY

2. Sri Lankan President vows to recapture northern Jaffna.

5. Pakistan seeks a ten-year moratorium in its debt servicing from Aid-Pakistan Consortium.

7. In an apparent expression of displeasure, over US military aid to Pakistan, India's former Minister, N. D. Tiwari postpones his scheduled visit to US; In South Africa President P. W. Botha's National Party retains power in the polls.

8. India warns Sri Lankan government against Pak help to end the ethnic problem. Gary Hart Democratic candidate for US presidency withdraws from race following a sex scandal.

9. A Polish jet airliner bound for New York attempts an emergency landing at Warsaw but all 183 passengers die.

13. Swedish Radio accuses Bofors, Sweden's biggest arms manufacturers, of paying upto 40 million dollars to Indian middlemen for getting the order for arms supplies.

14. Sri Lankan government rules out any political solution to the ethnic issue until Sri Lanka has established a military supermacy. Fiji government ousted in bloodless coup; Army Col. Sitiveni Rabuka, 38, seizes power in Fiji.

15. Former Afghan leader Karmal tries to escape to Pakistan and lands in Afghanistan. Frontier Gandhi Badsha Ghan arrives in Bombay for treatment; Fiji's coup leader Col. Siliveni Rabuka sworn in as President.

16. Hollywood's "love goddess", Rita Hayworth, 68, dies in New York.

17. Bofors company officials in Sweden deny payment of bribes to Indian middlemen.

18. Swedish economist Gunnar Myrdal, 88, dies.

24. Supporters of ousted Prime Minister Bavadra of Fiji threaten to set up rival government.

26. Fiji Indians launch civil disobedience campaign.

27. India warns Sri Lanka against onslaught of Tamils.

28. Sri Lankan President rejects India's appeal to refrain from military action against Tamils.

29. Reports confirm that Sri Lankan army dominates in Jaffna area.

30. Soviet Defence Minister Sokolov loses position following a West-German landing a light plane in Kremlin.

JUNE

1. Lebanese Prime Minister Rashid Karami killed in helicopter crash.

7. Bangladesh decries Indian airdrop of relief supplies in Sri Lanka.

8. US decides to give more sophisticated weapons worth $ 100 million to Pakistan.

9. Soviet Union proposes drastic limitation of US and Soviet nuclear weapons.

10. Sri Lanka stops raids against Tamils and offers to be ready for peace talks. Summit of seven western industrial nations at their 13th meet in Venice agrees on economic policy co-operation.

11. NATO allies give go-ahead for the dismantling of US and Soviet intermediate range nuclear missiles.

12. In Britain, Margaret Thatcher wins hands down for a history-making third term.

13. Former Fijian Prime Minister Timoci Bavadra postpones proposed visit to India.

15. India proposes to Pakistan fresh dates to reactivate Sub Commissions dealing with trade and economic co-operation.

18. Pham Hung, 74, replaces Pham Van Dong as Vietnam's Prime Minister.

20. In Haryana, Lok Dal-BJP team headed by Devilal assumes power.

22. Sri Lankan Air Force resumes bombing northern Jaffna.

23. France explodes an underground nuclear device at their Southern Pacific test site; A consortium of 14 industrialized nations and financial institutions led by World Bank pledge concessional aid of approximately Rs. 7000 crore to India.

24. In Sharjah, power struggle ends, as the ruler reaches a compromise with his brother who emerges as Deputy Ruler

30. Sri Lanka government asks India to halt food supplies to Tamils.

JULY

1. President Chun Doo-Hwan of South Korea agrees to opposition demands for direct

presidential elections and sweeping democratic reforms.

2. Philippines officials hail a Swiss decision allowing them details of former President Marcos's bank account in Switzerland; The 80-year old opposition leader of Pakistan G. M. Sayyad arrives in Bombay on a visit.

3. In Moscow Festival of India begins. Pakistan opposition leader Sayyad seeks autonomy for Sind; Deposed Fijian Prime Minister Bavadra refuses to be on a Constitutional Review Committee constituted by the Governor General.

6. In Sri Lanka LTTE attacks army camps and kills 100 soldiers.

8. Pakistan Prime Minister Junejo offers India permission to inspect the Kahuta Uranium Enrichment plant, provided India too extends the same facility.

10. President Hevan of S. Korea announces that he is stepping down as president of the ruling Democratic Justice Party.

11. PLO Chairman Arafat appeals to gulf countries to hold a summit to end the gulf war.

12. Deposed Philippine President Marcos says in Honolulu that he will initiate military action against Philippines only with the approval of US.

13. A Tibet expert, John Avedon, says that China has deployed 90 nuclear missiles aimed at India.

14. China & Pakistan agree to sign defence pact.

15. Former US National Security Adviser John Poindexter discloses that President Reagan had signed in Nov. 1985 the arms for hostage swap with Iran.

17. United States warns Pakistan that all economic and military aid would be cut off unless it convinced US it was not following a nuclear weapons course.

18. Sri Lanka President Jayawardene declares that any political solution to the ethnic problem will be implemented only after a referendum is held.

21. US refuses to extradite or help in tracing Win Chadha, the controversial middleman in the Bofors deal. UN Security Council unanimously passes a resolution demanding an end to the seven-year-old Iran-Iraq war.

22. Sri Lanka okays accord with India to end ethnic conflict.

27. Liberation Tigers of Tamil Ealam turns down peace proposals initiated by India and Sri Lanka.

28. 19 people die in police firing against mobs protesting against the proposed agreement between India and Sri Lanka to end the ethnic problem.

29. India and Sri Lanka sign peace accord in a bid to end the 5-year old ethnic trouble; A retired Brig. General of Pakistan Mr. Inam-ul-Haq was indicted in Philadelphia for conspiring to illegally procure nuclear steel needed by Pakistan to make the bomb.

30. Sri Lankan sailor slams rifle on Prime Minister Rajiv Gandhi, but he escapes unhurt. Indian troops land in Sri Lanka to oversee the implementation of the accord.

31. LTTE, Sri Lankan terrorist group refuses to lay down arms.

AUGUST

1. 200 Iranians die in Mecca when they clash with Saudi police.

2. Iran threatens Saudi Arabia to avenge the death of Iran pilgrims in Mecca. LTTE agrees to abide by the Indo-Sri Lankan Pact.

3. Iran announces starting of naval manoeuvres in the strait of Hormuz and warns ships to stay away from its territorial water.

4. US House of Representatives unanimoulsy passes a resolution to cut off military aid to Pakistan unless that country provides verifiable evidence that it is not producing nuclear arms.

5. Sri Lankan government announces amnesty to the Tamil militants who surrender the arms.

6. US decides to give only reduced development assistance to India; Government of India decides to enter into a treaty with Switzerland for mutual assistance in criminal matters.

9. Sri Lankan Prime Minister Premdasa expresses confidence in President Jayawardane's leadership.

11. LTTE says it wants guarantee for safety of Tamils in Sri Lanka.

13. US President Reagan accepts that he was ultimately accountable for the illegal sale of arms to Iran and the diversion of profits from the deal to Nicaraguan rebels.

14. US President Reagan's helicopter escapes collission with a Piper Archer Aircraft at Santa Barbara.

15. A Swedish public prosecutor says that if the government of India asks, he could initiate a probe on Bofors gun deal.

World's Best Loved Bug

What has been described as the "world's best-loved bug" is reportedly facing extinction, a prospect likely to dismay auto lovers rather than entomologists. For the "bug" in question is not an insect but the celebrated Volkswagen "Beetle" the little 1500 cc car that first rolled off the assembly lines in Germany in 1935.

Tough, inexpensive and low on fuel consumption, the Beetle really came into its own during the 1960s when a growing concern for fuel conservation and the emrgence of the "small is beautiful" credo made it something of a cult in the west, particularly on college campuses and among younger people.

Its tiny size and inelegant shape, unchanged since its inception, were seen as endearing attributes rather than handicaps and the "bug" became a status symbol in reverse, identifying its owner as a member of the environment-conscious intellgentia.

Imports Flood US Airport

The flood of imports at the Kennedy airport in the U.S. is awesome, according to the Wall Street Journal.

The Kennedy Airport accounts for 125 overseas flights a day bringing in everything from Italian sports car to Indian textiles, the journal said. However, the value of this flood of imports amounts to only 11 per cent of the total.

Despite some improvement, the journal pointed out, the U.S. is still in the red on the trade front to the tune of $160 billion a year.

The dollar has declined 60 per cent in three years in relation to key currencies of the exporting countries. However, the dollar decline seems to matter only on the margin, making some foreign luxury products too expensive, the journal said.

Much of the rest of the trade deficit looks as if it could persist at almost any exchange rate.

With overseas freigt rates as low as one dollar a pound, shipment by air is no longer confined to exotic, high priced products. Much of the freight is ordinary manufactured goods. To some people, even clothing is a "perishable" item. So, as fashions change exporters fly in the blouses, jackets or shirts that they figure Americans will buy.

A single Boeing cargo aircraft can bring in 119,000 kg of freight.

Cars are imported because an Italian luxury car costs $100,000 in the U.S., so another $4000 for freight would make no difference.

The journal said that because Indian textile shipments have become so huge, six customs officials do nothing but process rayon goods from India. Another team does Indian cotton. In the cramped quarters of the rayon crew the second floor window is partly blocked by a basket of more than 100 unprocessed shipment folders.

17. 160 persons including 141 passengers and 5 crew die in Romulus, Michigan (US), as a plane crashes into cars on a four-lane highway.
18. Sri Lankan President Jayawardane survives a grenade attack on his life. In the attack one Minister is killed and the Prime Minister Premadasa and six other Ministers and 20 MPs get injured.
19. Swedish Chief Prosecutor Lars Ringberg tells Swedish Radio that there is sufficient grounds to suspect bribes were paid in the Bofors deal. Swedish police say they are launching a criminal inquiry into the deal.
20. Government of India decides to set up a monitoring panel to keep watch on price trend and take corrective measures.

21. Sri Lankan Parliament imposes press censorship both on local and foreign media.
21. Iraq rejects mediatory role for Syria in the gulf conflict; Zimbabwe assembly passes constitution amendment bill abolishing seats reserved for whites in the Parliament.
26. South African President Botha faces tricky constitutional problem as the only coloured minister in the cabinet Allan Hondrickse resigns.
27. Over 200 fishermen are reported to have died in Bangladesh when their fishing boats sank.
28. A section of the armed forces led by a former Defence Minister try to capture power in Philippines, but loyal soldiers foil the attempt.
29. Swedish officials decide to probe Bofors company's arms deals in Europe.
30. Iraqi President Saddam Hussain pledges to defend Kuwait against any attack by Iran.

SEPTEMBER

1. In Sri Lanka LTTE takes over civil administration in Tamil areas.
2. Sri Lankan government finalises North Eastern Council for interim administration.
3. Swedish Prime Minister turns down a request of Indian opposition MPs for a meeting to discuss the Bofors issue.
7. India decides to give Sri Lanka Rs. 45 crores as aid, out of which Rs. 25 crores will be grant and Rs. 20 crores loan.
8. Philippine's President Aquino's entire cabinet submits resignation to enable her reorganize the government.
11. UN Secretary General Peres de Cuellar arrives in Iran for talks to end the gulf war. clashes between rival Tamil groups.
14. Soviet Foreign Minister Eduard Shevardnadze visits US to negotiate a treaty on intermediate range nuclear devices.
15. India decides to take steps to stop killings between Tamil groups in Sri Lanka.
18. Bofors Company President Morberg states in New Delhi that neither Prime Minister Rajiv Gandhi nor his family members had been paid any money in the gun-deal; Soviet Union and United States reach agreement on a treaty on intermediate-range nuclear missiles.
19. LTTE leader Prabhakaran accuses Indian Intelligence Agency, RAW of fomenting violence in Sri Lanka to wipe out the LTTE.
20. India warns LTTE of firm action if they did not desist from violence; Arab Foreign Ministers decide to hold a special summit of Arab League on gulf-war.
22. US attacks Iranian ship, 'Iran Ajr' killing 5 sailors and capturing 30 sailors prisoners.
23. In Fiji, the two main political parties agree to form a new government designed to retain democratic rule.
25. Col. Sitiveni Rabuka, Fijian Military Strongman, stages a second coup and assumes power.
26. LTTE leader Thileepan dies in Sri Lanka after a 12-day fast.
28. In Fiji Col. Rabuka scraps constitution; LTTE and Government of India agree on a solution and LTTE calls off agitation.
29. Col. Rabuka declares Fiji a Republic and announces a military council headed by him to govern the country.

OCTOBER

1. Sweden bans trade with South Africa.
2. In Sri Lanka, a member of the Indian force killed by unidentified men who opened fire and escaped in a vehicle to the compound of Sri Lankan military co-ordination office.
3. In Lhasa, capital of Tibet, 6 persons die as police opens fire on demonstrators against Chinese occupation of Tibet.
4. Sri Lankan President Jayawardane orders Gen. Depender Singh, GOC-in-C Southern Command and Commander of Indian Forces in Sri Lanka either to bring peace as per Indo-Sri Lankan Agreement or withdraw.
5. In Sri Lanka 12 LTTE men, including two top leaders detained by government commit suicide by swallowing cyanide pills, to prevent their being taken to Colombo for interrogation.

6. In Tibet's capital, Lhasa, people march chanting anti-Chinese slogans demanding independence, and police break the rally.

7. Dalai Lama calls for civil stir to liberate Tibet from China.

9. United States helicopters sink three Iranian gun-boats about 25 km south-west of Iran's Farsi Island.

11. Queen Elizabeth II rejects proposal for changes in the Fijian constitution.

12. Japan announces a Rs. 270 crore fresh concessional official development assistance loan to India to help India fight drought.

13. Sri Lankan Prime Minister Premadasa in a speech at United Nations accuses India of nurturing terrorists.

17. The Commonwealth formally announces ouster of Fiji from membership.

18. Indian peace keeping force in Sri Lanka enters Jaffna town overcoming stiff resistance of LTTE.

19. United States claim it has razed an Iranian non-producing oil platform 125 miles east of Bahrain.

20. Stock-prices crash in United States and investors lose an estimated 500 billion dollars.

21. Moscow offers massive aid of over $ 4 billion to Pakistan.

21. Soviet Union passes a new law allowing citizens to bring charges against government officials responsible for illegal actions.

24. U.S. Secretary of State Shultz says he is willing to sign a treaty with the Soviet Union to ban intermediate-range nuclear weapons without a superpower summit.

25. Indian forces free Jaffna from LTTE control. China seeks people's okay to split party and government.

29. U.S. and USSR reach an agreement on an agenda for a summit of the two heads of governments later this year; In Sri Lanka, peace-keeping Indian force in complete control of Jaffna. Officials say that more than 200 Indian militarymen and 800 LTTE men died in the operation.

31. U.S. President Reagan and Soviet Foreign Minister Shevardnadze announce super power summit in Washington in December 1987 and another in Moscow in 1988.

NOVEMBER

1. Sri Lankan Minister Athanayake escapes unhurt as a bomb explodes at his residence in Kandy; China's top leader, Deng Xiaoping, steps aside to pave the way for younger leaders.

2. Third SAARC Summit opens in Kathmandu. King Birendra of Nepal is elected Chairman of SAARC; In China Zhao Ziyang is named head of the Communist Party, Mr. Xiaoping to continue as Chairman of Central Military Commission.

3. US dollar tumbles to record low following share market collapse.

5. Informal talks on Sri Lankan power devolution begin in New Delhi between J. R. Jayavardane and Rajiv Gandhi in New Delhi.

5. Iranian gun-boat hits US tanker.

7. Tunisian President Habib Bourgiba is deposed and Prime Minister Zine El Abidine Ben Ali takes over as President.

9. Australia wins the World Cricket Cup beating England by seven runs in Calcutta. 50 people die and over 100 get injured in Colombo as a bomb rips through a crowded bus stand.

10. Twelve people die in Dhaka police firing against protestors demanding resignation of President Ershad.

11. The Arab-Summit in Amman adopts a resolution giving Arab states right to individually restore relation with Egypt severed in 1979 following the Camp David Agreement with Israel.

12. Sri Lankan Parliament adopts bills for provincial councils.

13. K. Natwar Singh, Minister of State for External Affairs assures Rajya Sabha that a protest will be lodged with Sri Lanka for its PM's criticism of India.

15. In Bangladesh, riot spreads to more areas as opposition led protests for Ershad's removal gain momentum.

17. Gunmen raid Sri Lankan Minister, Vincent Dias' home; Iraqi planes bomb nuclear plant in Iran.

18. In China Vice Premier Li Peng is nominated Prime Minister in place of Zhao Ziyang.

19. Sri Lankan Tamil militants free 18 Indian soldiers held prisoners in Chavakacheri.

20. India declares 48 hour cease-fire in Sri Lanka.

23. Bangladesh government arrests BBC correspondent Atans Samad in Dhaka.

24. Soviet Union announces Rs. 1150 crore aid for India.

25. India accepts in principle the Soviet offer to establish a space research centre and also a

nuclear power plant.

26. Philippines typhoon kills 200 people.

29. Bangladesh President declares emergency; A South-Korean plane with 115 people on board is reported missing over Burma.

DECEMBER

1. James Baldwin, 63, American black novelist dies in France Dr. Najibullah elected President of Afghanistan under a new constitution.

3. Cosmonaut Yuri Romanenko, 43, Commander of the Orbiting Platform Mir breaks the 300-day space endurance record also held by a Soviet.

4. The Kampuchean resistance leader Prince Norodom Sihanouk and the Vietnamese-backed Prime Minister Mr. Hun Sen signs a four-point agreement aimed at accelerating efforts to end Kampuchea's civil war.

5. Former Governor-General, Ratu Sir Penaia Ganilau appointed first President of the new Fiji Republic. Ratu Sir Kamisese Mara becomes the Prime Minister; Barak Sope, 36, nominated Prime Minister—designate of the South Pacific nation Vanautu.

6. President Ershad of Bangladesh dissolves Parliament amid a persistent opposition campaign to topple his government.

8. Reagan and Gorbachev sign historic treaty in Washington to scrap intermediate nuclear weapons.

20. Garry Kasparov retains world chess championship beating Anatoly Karpov in Seville, Spain.

21. About 2000 people die in ship-tanker smash off Manila, Philipines.

National Events

JANUARY

1. Tamil Nadu slips into partial prohibition. Jammu & Kashmir Government raises retirement age to 58.

2. Dr. Harekrishna Mehtab, former Chief Minister of Orissa, dies.

3. Karnataka Zilla Parishad elections give a jolt to the ruling Janata Party and boosts the morale of the Cong(I).

6. Indira loyalists launch National Socialist Congress; Music Director Jaidev, dies.

7. India wins test-series against Sri Lanka (2-0). Kapil Dev attains 300 Test wickets in the 3rd and final test against Sri Lanka at Cuttack.

8. An International Conference to commemorate the 75th Anniversary of the African National Congress opens in New Delhi.

10. Indian Yacht 'Trishna', captained by Lt. Col. K. S. Rao of Indian Army Engineers returns to Bombay after an around the world 30,000 nautical miles odyssey Sept. 28, '85 onwards.

13. The Prime Minister of Denmark, Mr. Poul Schluter visits India.

13. India undertakes offshore oil exploration and extraction in Vietnam under an agreement signed between the two countries.

17. Prime Minister lays the foundation-stone for the Naval Academy at Ezhimala, near Cannanore in Keerala.

18. Holland lifts Indira Gandhi Gold Cup in the inaugural hockey tournament in New Delhi with Spain in the second and India in the third positions.

20. Foreign Secretary, Mr. A. P. Venkateshwaran resigns.

21. K. P. S. Menon (Jr.), Ambassador to Beijing, appointed Foreign Secretary.

23. Army formation moved to border along the western front as a response to Pakistan's deployment of army units.

'Prostitute' redefined to include males, under the Immoral Traffic (Prevention) Act.

24. Cabinet Minister V. P. Singh shifted from Finance to Defence; 'Goodbye Green Summer' of the USSR gets the Golden Peacock award at the 11th International Film Festival at New Delhi; The Babri Masjit Action Committee withdraws its call to Muslims to boycott the Republic Day celebrations.

26. Gen. A. S. Vaidya gets Padma Vibhushan posthumously; Neerja Mishra wins posthumous award of Ashoka Chakra.

27. P. T. Usha nominated the Asian Athlete of 1986 by the US Sports Academy (USSA).

28. A South Delhi road named Olof Palme Marg, after the late Swedish Prime Minister who was conferred posthumously the 1985 Jawaharlal Nehru Award for International Understanding.

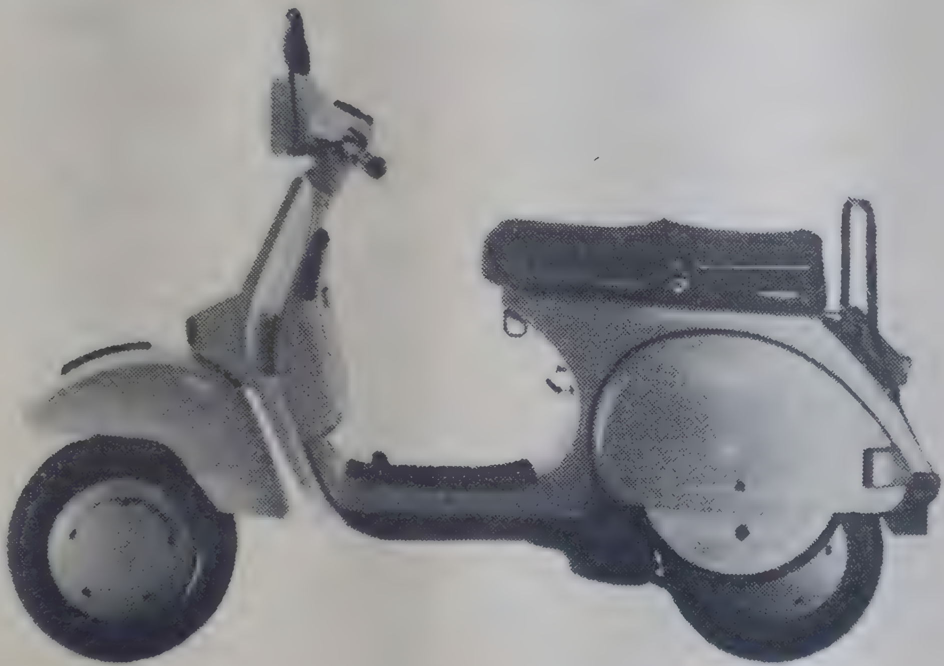
30. DMK President M. Karunanidhi and five others sentenced to 10 weeks rigorous imprisonment for burning the Constitution.

FEBRUARY

2. Y. K. Alagh made member of the Planning Commission.

3. The Gorkha National Liberation Front (GNLF) suspends agitation for two months;

'Vespa' Years Closing in Italy



The 'Wasp' is about to give way to the 'Thing' on the streets of Italy's cities, but things will never be the same for millions of Vespa fans.

The Vespa, or 'Wasp' — the motorised scooter which brought mobility to four generations of Italians and symbolised the country's postwar renaisance — will be officially pensioned off after an announcement by the manufacturer, Mr. Umberto Agnelli, chaiman of the Piaggio Company and younger brother of Fiat chief, Mr. Giovanni Agnelli.

Piaggio's new model of a modern motor-scooter, La Cosa, or 'Thing', will take the Vespa's place on Italy's roads and side-streets, but not its place in Italy's affections. Together with Martini, Ferrari and the tiny Fiat 500, the Vespa came to represent a certain style and raciness in the gradual restoration of prosperity to Italy's war-ravaged cities.

Audery Hepburn and Gregory Peck dated by Vespa in the film 'Roman Holiday' in the 1950s, and Anita Ekburg and Marcello Mastroianni later did the same in 'La Dolce Vita'.

Foreign visitors in the 1960s were charmed by the Vespa, and officially instructed to beware of young people riding scotters who might use them for a lightning raid to snatch their handbags.

Later, in the politicised 1970s, the 200 cc. Vespone model came to be associated with right-wing or neo-fascist supporters, while left-wingers drove the smaller (50 cc) Vespino model.

With so much history at stake, the ending of the 'Vespa years' has caused much soul-searching and breast-beating.

"Was it really necessary to jettison an old friend? Wouldn't it have been better to have kept what had become virtually an Italian ambassador, with ten million sold around the world in the last 40 years," one newspaper bewailed.

The 'Wasp' — which got its name from the buzz of its engine and the shape of its body — was born in 1946 in the ruins of Piaggio factory which had produced engines for bomber aircraft.

Prime Minister of Finland, Dr. Mauno Koivisto visits India.

4. National Anthem singing made compulsory in Kerala Schools.

6. Outlawed Tripura National Volunteers issue 'Quit Tripura' order to all Indian citizens.

7. Prime Minister Rajiv Gandhi declares in Darjeeling that a separate Gorkhaland is out of question.

8. National Democratic Party decides to quit the UDF in Kerala in protest against the Chief Minister's decision to postpone the implementation of 15% reservation for economically backward people.

9. The Sikh High Priests declare Surjit Singh Barnala, Punjab Chief Minister, a 'Tankhaiya'; Bundh in Goa in protest against the sole official language status granted to Konkani; M. R. Srinivasan appointed chairman of Atomic Energy Commission and Secretary, Atomic Energy Department (effective from March 1); P. K. Iyengar, Director of BAARC, seeks premature retirement in protest against Srinivasan's appointment.

10. Punjab Chief Minister Barnala refuses to appear before Akal Takht, who had declared him 'Tankhaiya'.

11. Punjab Chief Minister ex-communicated by the Sikh Head Priests for refusal to accede to their demand to step down from the Presidentship of the Akali Dal and dismantle the party.

12. In the biggest day-light robbery in the country, terrorists in police uniform loots Rs. 5.70 crores from Punjab National Bank, Ludhiana; Former Police Commissioner, Jaspal Singh elected Mayor of Baroda defeating Cong.(I) candidate.

13. GNLF decides to boycott Assembly poll in W. Bengal. The Central Government decides to set up a committee of secretaries to select diplomats for appointment.

14. Punjab Chief Minister S. S. Barnala claims that his government has absolute majority. Union Information Minister, Ajit Panja says 'Breakfast TV' will be introduced very soon; Satwant Singh, who was sentenced to death for killing Indira Gandhi, appeals to the Supreme Court.

15. RSS leader Bhaurao Deoras calls upon Hindus and Sikhs not to indulge in recriminations if a solution to Punjab problem is to be found; Punjab Chief Minister Surjit Singh Barnala sacks a dissident minister, Harbbajen Singh Sandhu and expels 11 party-men.

16. Opposition leaders after discussion with Prime Minister, Rajiv Gandhi, decides to visit Punjab to appeal for peace; Mizoram goes to polls; Election Commission issues notification for elections to Jammu & Kashmir, W. Bengal and Kerala assemblies on March 23; K. P. S. Menon Jr. takes charge as new Foreign Secretary; Malayala Manorama, the largest circulated daily in India launches its Trivandrum Edition.

17. Central Government suggests to States to give more freedom to the District level officers. Defence Minister V. P. Singh inducts India's first SSK (Submarine to Submarine Killer) into the Navy; Opposition parties demand equitable allocation of time on Radio & TV for election campaign.

20. A massive gathering of Sikhs in Longowal repudiates the ex-communication of Punjab Chief Minister, Barnala by Head Priests; Arunachal Pradesh becomes the 24th State of India; Lokdal splits over leadership issue.

22. Foreign students at the International Students House in Bombay refuses to undergo AIDS test; Congress and National Conference in J&K reach accord on sharing seats in election.

23. Justice Ranganath Mishra Commission appointed to look into the disturbances following Mrs. Indira Gandhi's assassination indicts police and clears Congress Party of any involvement.

24. In Kerala, Film Star Prem Nazir joins Congress Party.

25. The Railway Minister announces introduction of 8 superfast trains from April 1; Govt. of India defends President's remarks on Sri Lankan Tamils.

MARCH

1. Rajiv Gandhi presents a budget with a record deficit of Rs. 5688 crore; An all party convention supports Punjab Chief Minister Barnala and his Government in their fight against terrorism.

2. Dutch Prime Minister, R. F. M. Lubbers visits New Delhi; Prime Minister Rajiv Gandhi answers Lok Sabha that President is not sidelined; Government sets up a panel headed by P. N. Haksar to review the working of the three Akademies.

3. Supreme Court in a judgement rules that pension to government employees depends on service record.

4. The air intelligence unit seizes at Bombay

airport gold & foreign exchange worth Rs. 1.80 crores—the largest from any of the country's airports in a single operation.

5. In Bombay, a gang bombs police lock up and kills an industrialist R. D. Pradhan, former Union Home Secretary appointed Governor of Arunachal Pradesh.

6. India rejects Chinese claim on Arunachal Pradesh.

7. Sunil Gavaskar scores his 10,000 runs in cricket, at Ahmedabad and becomes the first batsman to make 10,000 runs. Police and security personnel enter Golden Temple parikarma when unknown persons fired at police from inside the temple.

9. Vibha Mishra refutes charges against B. V. Karanth in a Bhopal court. Railways introduce facilities to lodge FIRs about any offence during the journey in the train itself.

10. Amritsar DSP discloses that new army recruits are being lured into terrorism in Punjab.

13. The Opposition in Lok Sabha stays away during the reply to the budget debate. Speaker refuses to allow a privilege motion on President's letter to Prime Minister; Minister of State for External Affairs says in the Lok Sabha that India has no intention to make a nuclear bomb.

14. Police alleges that several terrorists fled the golden temple, probably on the advice of Panthi Committee; In a train sabotage near Trichy 22 persns lose lives and 80 get injured; Terrorists kill ruling Akali MLA Amarjit Singh in Ludhiana.

16. In Tamil Nadu Chief Minister M. G. Ramachandran drops two Ministers—K. A. Krishnaswami and A. G. P. Jagadeeshar.

18. Opposition members in Lok Sabha again walk out on being refused discussion on President's letter to Prime Minister; Rajan Jeitley takes over as Managing Director of Air India.

19. Farmers' agitation turns violent in Gujarat and five die in police firing; In a daring robbery, 27 men posing as CBI sleuths "raid" a jewellery shop in Bombay and decamp with jewellery valued at Rs. 30 lakhs.

20. Rajyasabha Chairman also bars discussion on President's letter to Prime Minister.

21. A Naxalite group in Tamil Nadu is held responsible for the train sabotage near Trichy; India calls its High Commissioner in Sri Lanka for urgent consultations.

23. Nearly 60 million voters in Jammu & Kashmir, West Bengal and Kerala go to polls.

24. India's first new generation rocket, ASLV, plunges within two minutes and 40 seconds of its launching.

25. In the March 23 elections in Kerala and West Bengal Marxist-led alliance gets majority. In Jammu & Kashmir, National Conference Congress alliance wins.

26. E. K. Nayanar and Farooq Abdulla are sworn in as Chief Ministers of Kerala & Jammu Kashmir respectively.

27. Union Law Minister Ashok Sen resigns following the debacle of the Congress(I) in W. Bengal assembly elections.

30. The Opposition in Lok Sabha gives notice of a resolution for removal of Speaker; Armed persons free Punjab terrorist Harjinder Singh Jinda from police custody.

APRIL

1. Bank lending rates reduced; Interst rates on short-term deposits go up.

2. Substantial adhoc relief announced for public sector executives; In Kerala, 14 more Ministers sworn in, bringing the number of ministers to 19; Indian Standards Institute becomes Bureau of Indian Standards, as it receives statutory status under Indian Standards Act 1986.

3. Prime Minister, Rajiv Gandhi announces that a sitting Supreme Court Judge will probe the Fairfax issue; In Kerala, the government stays all revenue recovery proceedings.
A Rs. 588 crore plan for cleaning Krishna River involving Maharashtra, Karnataka, Andhra Pradesh is announced.

4. Tamil Nadu Assembly sentences S. Balasubramanian, Editor of Anandavikatan, Tamil weekly to undergo rigorous imprisonment for 3 months for refusing to apologise for publishing a cartoon on legislators; In Kerala, Forest Minister M. P. Veerendrakumar resigns as his party MLAs express disagreement over his choice as Minister.

5. V. P. Singh, former Finance Minister justifies hiring of the US detective agency, Fairfax.

6. Tamil Nadu Assembly releases Editor of Anandavikatan, who was imprisoned for publishing a cartoon; Justice Thakkar to head Fairfax probe.

7. Supreme Court holds that all wives including Muslim women whose husbands have either married again or taken a mistress are

Seventh Odyssey To Icy Continent

The seventh Indian scientific expedition to Antarctica left from Goa in the Swedish ice-breaker "Thuleland" on November 26, 1987.

The 90-member expedition is be led by Dr. R. Sengupta of the National Institute of Oceanography, and a member of the first Indian expedition. Besides scientists and experts from various fields, the team includes personnel of the three wings of the armed forces.

The expedition will take up airborn magnetic survey of the Gruber massif and the low snow-bound areas between Schirmacher and Wohlthat ranges. The idea is to delineate subglacial geology of the region to assess its mineral potential.

The expedition will continue geological studies in Humbolt massif of Whohlthat mountains covering about 1,000 sq. km. This area has revealed interesting deposits of minerals and ilmenite core having 98 per cent purity. These investigations are of primary importance enabling India to claim a resource share in the mineral regime of the icy continent.

Job Seekers 3.05 Crore

The number of job-seekers on the live register of employment exchanges as on February 28, 1987 was 305.13 lakhs. The number of medical and engineering graduates including postgraduates who were on the live register of employment exchanges as on June 30, 1986 was 0.26 and 0.39 lakh respectively.

There are 25,613 medical graduates and postgraduates on the live registers of employment exchanges as June 30, 1986.

The Minister of State for Health Saroj Khaparde told the Lok Sabha that no target had been fixed in the Sixth Plan for providing jobs to jobless doctors.

According to the Sixth Plan, the Government's policy was not to increase the number of medical colleges or intake capacities.

The Minister said a number of steps had been taken to discourage the migration of medical manpower to foreign countries. Restrictions had been placed on medical graduates going abroad for higher education and training for which such facilities were available in India. Service conditions of doctors particularly, those in rural areas were being improved.

There were 38,980 engineering graduates registered with the employment exchanges on June 30, 1986. However, all these graduates were not necessarily unemployed.

A record numbers of 7,67,015 passports have been issued from various zonal offices in the country during the first nine months of 1987.

Bombay tops the list with 1,72,007 passports, followed by Delhi with 60,092, Madras 56,032, Ahmedabad 52,585, Cochin 52,032 and Hyderabad 45,726, External affairs Dy. Minister Mr. Natwar Singh informed Dr. M.H. Kidwai in Lok Sabha.

entitled to maintenance, in a case filed by Saira Banu of Kerala.

8. USSR denies charges that the new US embassy in Moscow is bugged; Karnataka Government decides to introduce worker participation in the management of public sector undertakings.

10. Kerala High Court directs State Government to prevent felling of trees in Agaly; CPI drops Mohit Sen from Party's National Council

12. V. P. Singh resigns as Defence Minister; K. C. Pant appointed in his place.

15. No-confidence motion against Lok Sabha Speaker, Balram Jhakhar rejected by voice-vote.

16. Mr. Arun Singh, Minister of State for Defence, states in the Lok Sabha that the enquiry ordered by a former Defence Minister V. P. Singh was in order but the premature publicity was uncalled for; Hamza Kunju, former Deputy Speaker of Kerala, is suspended from Muslim League for indiscipline; Madras High Court upholds expulsion of 10 DMK MLAs for burning excerpts of the Constitution.

18. Mr. K. Sudhakaran appointed Advocate General of Kerala.

20. Kerala Govt. seeks centre's aid to construct check dams across rivers to preserve water; Defence Minister K. C. Pant rejects opposition demand for probe into the allegation of Swiss Radio on Defence deals.

20. V. P. Singh calls upon government to proceed with the probe ordered by him into the Bofors deal to its logical conclusion.

21. Mr. Arun Singh discloses in Rajya Sabha that the Swedish government has agreed to invetigate the allegation made by Swedish Radio about kickbacks in arms deal; Defence Minister K. C. Pant holds discussion with Chinese leaders in Beijing on border issue.

23. Supreme Court in a judgement confers Hindu widows absolute ownership of property under Hindu Succession Act 1956.

24. According to figures released by Union Ministry, Gujarat leads in communal riots.

25. Non-Congress Chief Ministers meeting in New Delhi decides to work for a viable national alternative to Congress.

26. In Karnataka, Chief Minister, Hegde drops four ministers and inducts 24 more to the ministry.

27. India calls on Sri Lanka to stop bombing of Tamil areas and negotiate with the militants; Defence Minister K. C. Pant says in Lok Sabha that Pakistan's nuclear weapon programme is forcing India to review its option; Tamil Nadu announces Rs. 4 crore aid to Sri Lankan Tamils.

29. India confirms test launch of surface to air missiles.

MAY

1. 'Tabarana Katha', a Kannada film by Girish Kasaravalli bags the best feature film award for '86. Malayalam Director G. Aravindan wins the award for the best Director (Film: Oridath).

2. Naxalites guns down former MLA Bir Bahadur Singh in Bihar.

3. President Giani Zail Singh makes it dear that he has no intention to dismiss Rajiv Government.

4. Ghanikahn Choudhary, Minister for Programme Implementation resigns following indictment by Public Accounts Committee on leasing out Railway land by him.

5. The Punjab Vidhan Sabha unseats 11 more Akal Takht sponsored group legislators, bringing the total unseated so far to 22, under Anti-Defection Bill.

6. Prime Minister Rajiv Gandhi replies to President Giani Zail Singh that details of arms deal cannot be made available to him.

7. INSAT-1B successfully completes 1000 days of continuous operations in space.

8. Women representatives of seven SAARC countries meet in Bangalore; Pondicherry Assembly passes resolution seeking full statehood; P.M. Rajiv Gandhi challenges V.P. Singh to reveal all facts regarding Fairfax issue.

10. After a visit to China, CPI(M) Gen. Secretary,E.M.S. Namboodiripad says China would respond if India wanted to have talks.

11. President's rule imposed in Pubjab; Lok Sabha passes Goa Statehood Bill unanimously.

12. In Pubjab, govt. extends DGP Rebeiro,s term of office by one year; Britain's HMS Hermes becomes Indian Navy's second aircraft carrier named INS Viraat.

13. In Pubjab, police arrests a former member of Barnala cabinet for terrorist activities.

14. In Punjab police arrests an MLA and many others; Sukhoninder Singh Sandhu believed to be involved in the killing of Gen. A.S. Vaidya is arrested in New Jersey, U.S.A.

15. FBI arrests in US Sukhmir Singh Sandhu, main suspect in AS Vaidya's murder case

17. In Pubjab police busts two terrorist gangs and arrests several terrorists.

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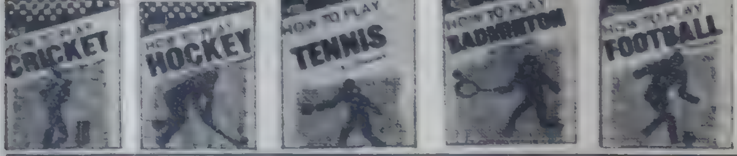
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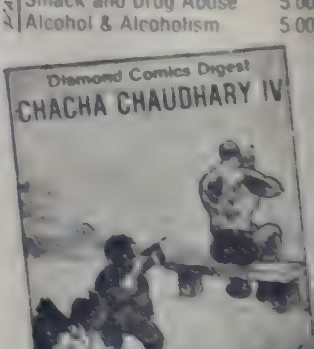
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19. Communal troubles breake out in Meerut and 15 die in clashes.
20. Government of India decides to allow Indian team to play Israel in the Davis Cup Tennis quarter finals.
21. Governemnt of UP starts consultations to handover control of riot-rocked Meerut to the army; Former PM Morarji Desai says that the President cannot dismiss the PM so long as the PM enjoys a majority in Parliament; Bihar emerges champions in the 25th National Inter-State athletic championship, Kerala becomes runner-up.
22. Minister of state for external affairs Eduardo Faleiro leaves for Australia and Newzealand to discuss developments in Fuji.
23. Punjab police DG Rebeiro says that police will enter religious places to flush out terrorists.
24. In Andhra Pradesh government makes medicare in government hospitals available only on payment.
25. In Meerut the death toll in communal violence rises to 111.
26. VP Singh says he will depose before the Thakkar-Natarajan commission only if the hearings take place in open court.
27. Government of India announces termination of all agreements with Fairfax group.
28. UP Government sacks the provincial armed constabulary chief as death toll in the communal riots rises to 129.
29. Former Prime Minister Charan Singh (85) dies.
30. 41 killed in Bihar in caste violence. Goa becomes 25th state of India, Daman and Diu to remain as union territories.

JUNE

3. Sri Lanka halts Indian relief convoy.
4. A Swedish Government enquiry finds that Bofors paid commission to middlemen for concluding arms purchase agreement with India.
9. Demonstration in Goa against promotion of 'elitist terrorism'.
11. Government of India decides to send team to Switzerland to obtain information on secret funds held by Indians.
12. Prime Minister Rajiv Gandhi rules out immediate transfer of Chandigarh to Punjab.
13. Congress (I) nominates R. Venkataraman as their candidate for Presidency.
14. In Delhi, terrorists mow down 12 persons including in a birthday party; Prime Minister Rajiv Gandhi rules out termination of Rs.1700 crore Bofors gun deal.
15. India and Sri Lanka reach an agreement on the procedure for despatch of relief supplies; R. Venkataraman files nomination papers for presidential election; Govt. of India announces enhanced pay scales to college and university teachers.
18. In Haryana elections, Lok dal (B) BJP alliance wins landslide majority.
19. Bahuguna elected president of Lok Dal (B).
20. In Haryana, Lok Dal–BJP team headed by Devilal assumes power; Ornithologist Dr. Salim Ali, 91, dies in Bombay; In Darjeeling, a 13-day bandh called by GNLF begins with arson and looting.
22. President Zail Singh declares he has no intention to run for presidency for a second term.
23. West Bengal Chief Minister Jyothi Basu orders crack down on Gorkha militants in riot-torn Darjeeling; BJP announces its members will abstain from voting in the presidential election because of disagreement with other parties.
24. Indian Relief Ship "Island Pride" unloads food and medicines in Jaffna; West Bengal Govt. promulgates ordinance to deal with the GNLF agitators.
25. A nn-confidence motion against Maharashtra Speaker Shakar Rao Jagatap fails; In a pre-dawn swoop on the Golden Temple in Amritsar, police detains 130 persons and recovers weapons and explosive literature.
26. Badsha Khan, the Frontier Gandhi is discharged from hospital in Bombay after 43 days' treatment; Central government decides to handle Gorkhaland issue directly.
27. VP Singh suggests that the Bofors deal should be enquired into by a Parliamentary Committee.
28. GNLF calls off the Bandh before completion of the period.

JULY

1. Mathur Singh who is involved in several murders including that of Gen. A.S. Vaidya dies in a shoot-out in Punjab
2. Prime Minister Rajiv Gandhi arrives in Moscow on a two-day visit
3. Prime Minister Rajiv Gandhi in a press conference rejects opposition demand for mid-term poll.

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On To Internal Debt Trap

If the trend in market borrowings by the government continues, India might get into the situation of an internal debt trap by 1992-93, according to a Reserve Bank of India study.

The study, which comes to this conclusion on the basis of calculations taking into account present trends, says "a point of no return may be reached by 1992-93 when net market borrowings may not be sufficient to pay even interest on market borrowings."

The study points out that the gross aggregate internal liabilities (GAIL) rose from Rs.10.134 crores in 1968-69 to Rs.1,38,213 crores in 1986-87. According to the budget for 1987-88 they are likely to go upto Rs.161,029 crores.

The annual compound growth rate of GAIL works out to 15.6 per cent upto 1986-87 and 15.7 per cent upto 1987-88.

If dues receivable from others, that it states, public enterprises etc., to whom the central government has issued loans, are excluded, the net aggregate internal liabilities (NAIL), rose from Rs.1,662 crores in 1968-87 with an underlying compound growth rate of 22.9 per cent.

Taking into account the budget estimates for 1987-88, NAIL would be Rs.82,267 crores and the compound growth rate since 1968-69 would be 22.8 per cent.

One point that emerges from the study is that NAIL as a proportion of GAIL has shown a rising trend from 16.4 per cent in 1968-69 to 49.0 per cent in 1986-87 and 51.1 per cent in 1987-88.

Net interest payments (NIP), as compared to gross interest payments (GIP) which includes interest received, has also been rising at a fast pace since 1978-79. The annual compound growth rate of NIP is 52.1 per cent for the period 1978-79 to 1985-86.

As a result NIP as a proportion of revenue receipts, tax receipts and revenue expenditure has been going up from 1.4 per cent 1.8 per cent and 1.4 per cent to 9.8 per cent. 13.5 per cent and 8.2 per cent respectively in 1978-79.

National Debt Rs.12,150 Crore

The total internal and external debt of the Government is estimated at Rs.12,150 crore by the end March, 1983, Minister of State for Finance Janardhan Poojary told in Rajya Sabha in November.

India's foreign debt outstanding as of March 1987 is Rs.31,919 crore.

The minister of state for finance B.K. Gadhvi told Lok Sabha in November, 1987 that the figure was Rs.26,638 crore and Rs.24,004 crore in 1986 and 1985 respectively.

He said the foreign exchange reserves had shown a decline of Rs.755 crore from April to October as compared to a decline of Rs.880 crore in the corresponding period in the previous year.

Mr. Gadhvi said the debt servicing ratio and the overall external debt position of the country were within manageable limits.

The outstanding balance on November 1 this year under EFF to IMF to be repaid on April 29, 1994 was SDR 2962.50 million.

The outstanding balance on November 1, 1987 on trust fund loan account was SDR 318.92 million equivalent of Rs.526.53 crore at the current rupee-SDR exchange rate of Rs.161.51 per SDR which is to be repaid by the August 14, 1990.

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5. In U.P. 97 people die in heat wave.

6. Prime Minister Rajiv Gandhi announces in a joint press conference addressed by Norwegian Prime Minister and himself that Swedish Audit Report on Bofors arms sale to India does not contradict anything he said earlier.

7. Punjab terrorists butcher 76 bus passengers in Punjab and Haryana.

9. 50 die as train derails in Andhra Pradesh.

11. Government prepares master plan to cover the entire northern region embracing 7 states and 2 union territories against terrorist activities.

12. Leaders of political parties and many social, religious and commercial organisations criticise Sikh High Priests for not condemning the killing of bus passengers.

13. Over 90 percent of the 4695 electors vote in the Presidential election of the country.

14. Union Minister for Tourism Mufti Mohammed quits the Cabinet.

15. Congress President Rajiv Gandhi expels VC Shukla, Arif Mohammed Khan and Arun Nehru from Congress for anti-party activities.

17. VP Singh, former Finance Minister, announces resignation from Congress; R. Venkataraman gets a massive majority in the Presidential election, with 18 of the 25 states and over two-thirds of the total number of electors backing him.

18. Amitab Bachhan resigns his Lok Sabha membership; Arun Singh, Union Minister of state for defence, resigns from the cabinet.

19. Congress President Rajiv Gandhi expels V.P. Singh from Congress and orders probe into Ajitab Bachhan's property abroad.

21. President-elect R. Venkataraman says in an interview with the news magazine *The Week* that he is not sure whether the President has the power to grant permission to prosecute the Prime Minister.

22. The Congress Working Committee ratifies expulsion of Arun Nehru, VP Singh, V.C. Shukla and Arift Mohammed Khan from the Congress; In talks with Subhash Gheising Prime Minister rules out formation of a separate state for Gorkhas; Government of India impounds Win Chadha's passport, Central Minister for Public Enterprises KK Tiwari resigns from the cabinet, reportedly at the instance of Prime Minister, for attacks on President Zail Singh.

24. President Zail Singh in his farewel broad cast to the nation tells that basic values are above individuals.

25. R. Venkataraman assumes office of the President of India; Prime Minister Gandhi rules out a mid-term poll.

28. HKL Bhagat, Minister for Parliamentary Affairs states that the terms of reference of the proposed parliamentary committee to go into the Bofors deal is fair enough.

29. Speaker suspends CPM member Ajoy Biswas from the Lok Sabha for misbehaviour and the opposition decides to boycott Lok Sabha.

30. In Delhi, terrorists kill two BJP leaders — Hans Raj Sethi and Sudershan Munjilal; The government revokes suspension of CPM member Ajoy Biswas.

31. Major Opposition parties decide to boycott the Rajya Sabha till government conceded their demand for discussion on the Bofors issue.

AUGUST

1. CPI decides to launch agitation for mid-term poll.

2. Geet Sethi retains the World Amateur Billiards title. Vishwanathan Anand becomes the first Asian to win the World Junior Chess championship.

3. Supreme court revokes its order postponing all India Entrance Examinations for MBBS, BDS & Postgraduate courses in medicine and directs Central Board of Secondary Education to conduct these exams in June 1988.

4. College and University teachers begin nation-wide strike to get increased emoluments at par with central universities; Government files criminal case against Win Chadha.

5. A meeting between ruling Congress (I) and opposition over the Bofors panel ends up without reaching any agreement.

6. Lok Sabha adopts a motion seeking appointment of Parliamentary Committee to go into Bofors deal as the opposition walks out.

7. Janata MP Madhu Dentavade urges government to bring out a white-paper on defence deals since 1980 and major FERA violations.

9. Prime Minister Rajiv Gandhi inaugurates the 45th anniversary of Quit India Movement in Bombay.

10. United Akali Dal decides to withdraw from the Sikh scene leaving militants to run the affairs.

11. Assam Chief Minister Prafulla Kumar

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Mahanta declares he will boycott the special session of parliament to mark the 40 years of Independence.

13. Addressing the commemorative session of Parliament marking 40th Anniversary of independence, President Venkataraman exhorts people to repulse anti-national forces.

14. In Bihar 35 people die in boat mishaps as flood situation worsens; Central Government announces ad-hoc grant of Rs.55.40 crore to states for drought relief.

14. At a special investure ceremony at Rashtrapati Bhavan, President R. Venkataraman confers the Bharat Ratna Award on Frontier Gandhi Khan Abdul Ghaffer Khan. Frontier Gandhi's son Wali Khan receives the award on behalf of his father who is in a coma for the past several days.

15. Addressing Independence day celebrations Prime Minister Rajiv Gandhi vows to stamp out terrorism.

17. Members of Parliament write to Swedish Prosecutor to investigate the charges of 'kickbacks' in the Bofors gun deal; Both the ruling party and the opposition agree on Shankar Dayal Sharma as the candidate for Vice-President.

18. S.D. Sharma files nomination paper for Vice-Presidential election; Government of India announces interim relief to workers in over 200 public sector enterprises.

19. In Hyderabad Naxalites kill ten policemen in a forest area; In Punjab, terrorists kill six relatives of Union Home Minister Buta Singh.

20. Government of India decides to set up a monitoring panel to keep watch on price trend and take corrective measures.

21. S.D. Sharma is elected unopposed as the Vice-President of India.

24. Supreme Court rejects the review petition filed by CPWD against the court's decision in January 1986 ordering equal wages for equal work for the master roll workers.

26. Renowned Oriya writer and poet Satchidanand Routary wins Jnanpith Award for 1986; Government of India seeks fresh clarifications from Bofors.

27. Sri Jayandra Saraswati Swami of Kanchi Kamakoti Peetom who left the Ashram four days ago, is spotted in Kailasa Ashram at Talecauvery in Coorg District; Congress (I) suspends 5 MPs — Ram Dhan, S. Malik, M. Singh, R.K. Rai and R.P. Patel from the party for anti-party acts; Speaker Balram Jhakar appoints B. Shankaranand as Chairman of the Parliamentary Committee to enquire into the Bofors gun deal.

28. Lok Sabha passes the 58th Constitution Amendment Bill aimed at reserving some seats for tribals in Nagaland, Meghalaya, Mizoram and Arunachal Pradesh.

29. Congress (I) suspends 5 MLAs in UP for anti-party acts; Nagi Reddy selected for Dadasaheb Phalke Award for 1986.

30. Police arrests in Delhi Terrorists Jinda and Bawa, allegedly involved in the murder of Gen. A.S. Vaidya and others.

SEPTEMBER

1. Directorate of Revenue Intelligence carry-out raids in all Indian Express offices.

3. Dr. Shankar Dayal Sharma sworn in as the eighth Vice President of India.

4. University and College teachers call-off their strike following government's acceptance of their major demand for slashing the number of scales; In Rajasthan, Roop Kanwar, 18 year old girl, commits sati by burning herself in her husband's funeral pyre.

5. President Venkataraman presents awards to 164 teachers.

7. In a reshuffle of AICC, Congress President Rajiv Gandhi appoints A.K. Antony and Janardhan Poojari as PCC Chiefs of Kerala and Karantaka respectively and a new set of General Secretaries.

8. In Punjab, four head priests openly support militants saying that the militants are fighting for liberation.

11. Government of India announces austerity measures to conserve Rs.650 crores for fighting drought.

12. Prime Minister Rajiv Gandhi expresses serious concern over Pakistan's continuing complicity in providing arms and training for terrorists.

12. Government of India suspends loan recovery from drought affected areas

15. In Rajasthan, the State Government bans any public function to commemorate 'Sati' performed by the 18-year old Rajput girl, Roop Kanwar.

17. Ten persons die when police opens fire in Tamil Nadu's S. Arcot District as the rasta roko agitation by Vanniyar Community turns violent

19. Government of India announces a new set of taxes to collect Rs.550 crore for fighting drought.

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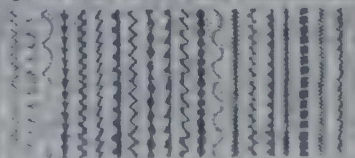

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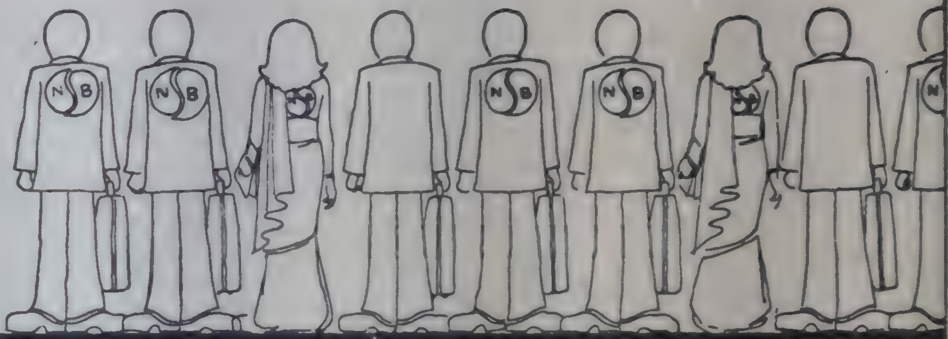
20. Mufti Mohammed Syed, former Union Minister, suspended from Congress for anti-party activities.
21. India decides to send three teams of IPS Officers to UK and US for training.
23. Security forces raid Golden Temple in Amritsar and arrests 24 terrorists.
25. Swiss authorities refuse residence permit to Ajitabh Bachan.
29. The Panthic Committee which virtually controls the Golden Temple announces that it does not recognise Prof. Darshan Singh as Chief of Akal Takht and calls for sarbat khalsa to elect a new chief.
30. Prime Minister Rajiv Gandhi inaugurates Reliance Cup Cricket Match in New Delhi.

OCTOBER

1. Government of Rajasthan promulgates an Ordinance, according to which anyone who abets 'Sati' will be awarded death penalty.
2. V.P. Singh launches his organisation 'Jan Morcha', along with his associates.
4. George Fernandes files a petition in a Swedish court seeking directive to Swedish government to reveal names of those who received kickbacks in Bofors gun deal with India.
4. India enters Davis Cup final when Ramesh Krishnan beat Wally Masur (8–6, 6–4, 6–4) in Sydney.
5. Bombay High Court in a judgement says Newspapers do not come under MRTP Act.
9. India decides to buy medium-range Super Computers for weather forecasting and agricultural research.
10. India suspends trade with Fiji; Defence Ministry names Vice Adm. Jayant G. Nadkarni as the next Chief of the Naval Staff. He will take over on Nov. 30, 1987.
8. India asks the Dalai Lama not to indulge in poltical activities from Indian soil.
12. Gurudas Kamat appointed President of Indian Youth Congress.
16. United Akali Dal and Akali Dal (L) elect their own nominees as President of SGPC.
17. Reserve Bank of India tightens credit policy and raises liquidity ratio of Banks to 10% from 9.5%.
19. Communist Party of India welcomes Congress to join the national compaign against communalism.
20. Police conducts mass arrests in Punjab to prevent holding Sarbat Khalsa.
21. Government of India announces it will introduce legislation to curb capitation fee in Medical and Engineering Colleges; Police swoop on Golden Temple in Amritsar and take into custody 400 persons to block holding of Sarbat Khalsa.
25. 22 political parties moot reforms on poll funding.
27. Vijay Merchant (77), former test player, dies in Bombay following a heart-attack.
29. The unified Akali Dal in Punjab decides to launch a civil disobedience stir from January 26, 1988 if its grievances are not redressed by then.
31. Former Chief Justice of Supreme Court Mr. Y.V. Chandrachud says in Bangalore that out of court works for Judges needlessly lend a political flavour to their functioning and harm the institution.

NOVEMBER

1. Passengers and crew of Indian Airliner 737 Boeing Aircraft escape unhurt as the plane forcelands in Bangalore.
3. Ten people die in Andhra Pradesh as cyclone sweeps the Coromandal coast.
4. Congress working committee decries sati incidents in Rajasthan; In Bombay's KEM Hospital three more test-tube babies are born.
4. Prime Minister Rajiv Gandhi tells Tamil militants in Sri Lanka to lay down arms for ceasefire; India signs terrorism treaty at the SAARC meeting in Khatmandu
5. India loses to England in the World-cup Cricket in Bombay by 35 runs.
6. Opposition parties in Parliament and Rajya Sabha walkout over Sri Lanka issue.
7. Bharat Jan Vigyan Jatha – Science Yatra – started from five centres ends in Bhopal.
9. Lok Sabha okays extension of President's rule in Punjab.
10. Opposition MPs demand ceasefire in Sri Lanka.
11. India's first Pvt. midi-steel plant costing Rs.200 crores is to come up in Bhandava, sponsored by a non-resident Indian
12. A Division Bench of Bombay High Court holds that under the newspaper rule followed in England, a newspaper or journal cannot be compelled to disclose its source
14. Government orders taking over of Express building in Delhi for violation of lease terms.
15. Sino-Indian talks begin in New Delhi.
16. Opposition parties condemn government's



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action of taking over Express building in Delhi.

17. Darshan Singh, acting Akal Takht Chief announces his resignation.

20. Congress gets absolute majority in Nagaland elections.

21. The Festival of USSR begins in New Delhi; Dilip Vengsarkar named India's captain for the first two cricket tests and one-day internationals against the West Indies.

DECEMBER

1. CBI charge-sheets Carbide officials.

2. Former Punjab Chief Minister, Prakash Singh Badal released from the Jabalpur Central jail.

5. Sweden signs secret memorandum with India relinquishing the right to suspend weapons export, if India becomes involved in an armed conflict.

6. MiG-29, re-christened as 'Baaz', inducted into the Indian Air Force.

9. Thakkar-Natarajan Commission report finds grave administrative lapses by the Finance minister in engaging Fairfax Group Inc. of the US to to investigate the economic offences by certain companies.

11. Rajiv Government defeats the firstever no-confidence motion.

12. The U.S. Senate reverses panel decision linking India and Pakistan on nuclear proliferation issue.

15. Veteran Communist leader P. Ramamurthi, 80, dead.

17. Bhopal court orders the Union Carbide to pay Rs.350 crores as interim relief to 1984 gas victims.

20. The 2nd National Games opens in Trivandrum.

24. M.G. Ramachandran, 70, Tamil Nadu's actor — Chief Minister dies; N. Nedumchezhiyan the new C.M.

HIGHLIGHTS OF SCIENCE 1987

1. For the first time in almost 400 years, astronomers observed a supernova burst—caused by the explosion of a star 30 times heavier than the Sun.

2. The Government of India approved a Rs. 25 crore project for building the world's largest radio-telescope at metre wavelengths, construction of which is to be completed near Pune by 1992. It will consist of 34 steerable parabolic dish antennas, each of 45 meters diameter.

3. For the first time organic matter was found on a comet new to the Solar System. The discovery was made on Comet Wilson, which is believed to be on its first and only visit around the Sun. This new result has given some credence to those who theorize that life on Earth arose from organic chemicals brought to it by extra-Solar comets.

4. Two bright arc-shaped objects surrounding two elliptical galaxies in 110-degree sections of circles, and located at about five billion light years from the Earth, were discovered as the biggest objects in the universe known to astronomers so far.

5. Traditionally four fundamental forces are known in Physics. These are gravity, electromagnetism, strong nuclear force, and weak nuclear force. Now, however, evidence has mounted for a fifth force that has been found to act over distances between 10 and 1000 meters. It has a strength much weaker than gravity and it depends on the composition of the matter experiencing the force.

6. Superconductivity research continued to make important breakthroughs througout the year. The phenomenon has now been repeatedly observed at temperatures higher than 77 degrees Kelvin, which is the boiling point of liquid nitrogen. The availability of superconductors above the liquid nitrogen temperature is of big economic advantage and technological applications are expected to follow soon.

7. Based on samples obtained from depths of some 3,000 metres, geologists claimed that the Florida peninsula was once a part of Africa and not North America, to which it is now attached.

8. The first example of an underwater crater caused by the impact of a meteorite was discovered near Nova Scotia in Canada. The diameter of the colliding object is estimated to be between 2 and 3 kilometers and the impact took place about 50 million years ago.

9. An American expedition to Mount K2, currently considered to be the world's second

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highest peak, claimed that its survey revealed the height of K2 to be 8,890 metres, versus the 8,615 metres considered standard at present. The new claim, if proven true, would make K2 42 metres taller than Mount Everest.

10. Using radar as a tool for "seeing" under the soil, palaeontologists discovered the buried remains of a new gigantic dinosaur, at a length of more than 40 metres. This is the world's largest animal, living or extinct, discovered so far.

11. New detailed studies by climatologists have revealed that in recent decades precipitation has increased in the higher latitudes, decreased in the lower latitudes, and remained about the same in the equatorial region. Some workers have claimed that these results are in agreement with predictions based on the greenhouse effect—a phenomenon caused by the excessive buildup of carbon dioxide in the atmosphere due to human activities.

12. Wheat, rice, maize, serghum, barley, sugarcane and other similar food plants are all members of the grass family. Until now it has not been possible to exploit the new techniques of genetic engineering in grasses due to the non-availability of a technique for introducing foreign genes into the plants. But new agricultural research seems to have overcome this difficulty with the help of a bacterium called *Agrobacterium*.

13. Biologists studying the development of animals from the embryonic to the adult stage have long sought to find substances—called morphogens—that help in orderly growth. Scientists in the U.S. have now apparently found one such morphogen. This is a chemical called retinoic acid and it regulates the growth of limbs in chicks.

14. The world's first laboratory offering to identify the genetic relationship between individuals opened for business in U.K. Such "genetic fingerprinting", which can be done with minute samples of blood, hair, skin, semen, or tissue, will be of immense benefit to police, courts, animal breeders, immigration officials and others.

15. Scientists in Britain invented a biopsy needle which is so fine that the body instantly reseals the puncture when the needle is removed. At the same time the ultrasonic scanner used to track the needle does not "lose" it because of its thinness.

16. Medical scientists have been trying for several years to develop a multipurpose vaccine that can alone provide protection against several diseases. Earlier expectations were that such a vaccine might be created using the vaccinia virus—which is used in making smallpox vaccine. However, new research has indicated that the bacterium known as BCG is much more promising.

17. A 48-year old South African woman became the first surrogate mother of her own grand childeren when she gave birth to her daughter's test-tube triplets.

18. A computerized device claimed to be the world's first instanteneous translator of speech was displayed by the firm British Telecom.

19. A Japanese company introduced the prototypes of a 16 million bit "dynamic random access memory (DRAM)" computer chip, thus considerably improving over the existing DRAM chips whose capacity is limited to 4 million bits of information.

20. Soviet cosmonaut Yuri Romanenko broke the 237-day space endurance record set in 1984.

21. Engineers in the U.S. successfully tested the prototype of a new hybrid between a helicopter and a jet plane. While it is able to take off and land like a helicopter, it is expected to fly at 960 km per hour.

22. With about four hundred markers, biologists succeeded in drawing a rough map of the entire set of human genes. This will help in better understanding of genetic diseases.

Space Record

Cosmonaut Yuri Romanenko, the 43-year-old commander of the orbiting platform Mir, on December 3, 1987 broke the 300-day space endurance record also held by a Soviet.

Mr. Viktor Blagov, one of the officials in charge of the mission, told Tass after talking to Romanenko during a regular communication session that "his spirits are high and the work is proceeding as planned. However, he admitted he is missing his home, near ones and friends very much".

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Central Leather Research Institute, Madras (CLRI)

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Central Institute of Medicinal & Aromatic Plants, Lucknow (CIMAP)

Industrial Toxicology Research Centre, Lucknow (ITRC)

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Dr. Zakir Husain : 1967-1969
Varahagiri Venkata Giri : 1969-1969 (Acting)
Justice Mohammed Hidayatullah : 1969-1969 (Acting)
Varahagiri Venkata Giri : 1969-1974
Fakhruddin Ali Ahmed : 1974-1977
B.D. Jatti : 1977-1977 (Acting)
Neelam Sanjiva Reddy : 1977-1982
Giani Zail Singh : 1982-1987
R. Venkataraman : 1987-Till date

Vice-Presidents of India

Dr. Sarvepalli Radhakrishan : 1952-1962
Dr. Zakir Husain : 1962-1967
Varahagiri Venkata Giri : 1967-1969
Gopal Swarup Pathak : 1969-1974
B.D. Jatti : 1974-1979
Mohammed Hidayatullah : 1979-1984
R. Venkataraman : 1984-1987
Dr. S.D. Sharma : 1987-Till date.

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Gulzari Lal Nanda : 1964-1964 (Acting)
Lal Bahadur Shastri : 1964-1966
Gulzari Lal Nanda : 1966-1966 (Acting)
Indira Gandhi : 1966-1977
Morarji Desai : 1977-1979
Charan Singh : 1979-1980
Indira Gandhi : 1980-1984
Rajiv Gandhi : 1984-Till date

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M. Patanjali Sastri : 1951-1954
Mehar Chand Mahajan : 1954-1954
B.K. Mukherjea : 1954-1956
S.R. Das : 1956-1959
Bhuvaneshwar Prasad Sinha : 1959-1964
P.B. Gajendragadkar : 1964-1966
A.K. Sarkar : 1966-1966
K. Subba Rao : 1966-1967
K.N. Wanchoo : 1967-1968
M. Hidayatullah : 1968-1970
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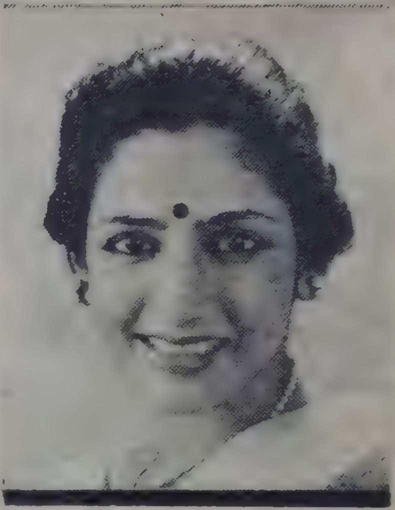

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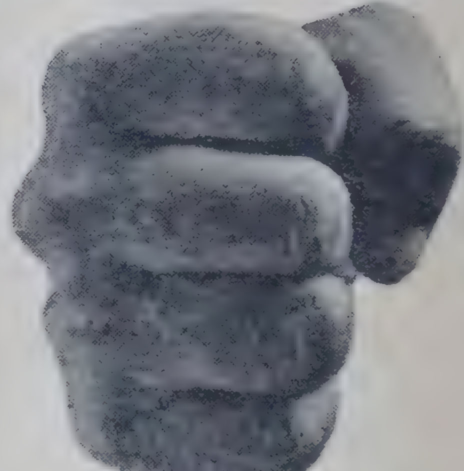

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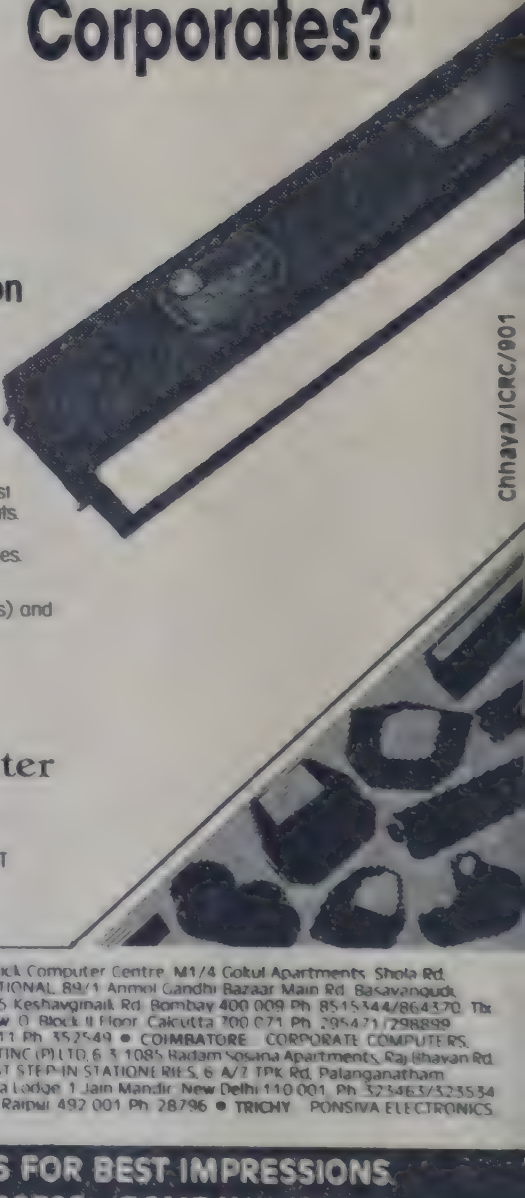

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- **Czech Communist Party Chief:** Milos Jakes replaces Dr. Gustav Husak.
- **Miss World:** Ulla Weigerstorfer, 20, a veterinary student from Vienna, Austria
- **Indira Gandhi Prize:** For Peace, Disarmament and Development, 1987: Rs. 15 lakh. Mikhail Gorbachev, Genera Secretary of the Communist Party of the Soviet Union.
- **Golden Heart Presidential Award** of Philippines: Dr. M.S. Swaminathan, Director General, IRRI, Manila.
- **National Habitat Award:** Rs.1,00,000. Larry Baker, Trivandrum.
- **Booker Prize:** £15,000: Mrs. Penelope Lively for her seventh novel, Moon Tiger.
- **Kabir Samman:** 1987—88 Rs. 1 lakh. By Madhya Pradesh Govt.: Subhash Mukhopadhyaya, Bengali poet.
- **Tata Gold Medal:** 1987: V. Krishnamurthy, Chairman, Steel Authority of India.
- **Prof. G.D. Parikh Memorial Award:** 1987: Rs.10,000: Dr. Satish Dhawan, Director, Indian Institute of Science, Bangalore.
- **Sanjay Chopra Award:** For bravery: K.S. Sidhartha, 9 (posthumously) Andhra Pradesh.
- **Gita Chopra Award:** For bravery: Kumari Monalisa Devi, Orissa.
- **Election Mizoram,** February 1987 Total seats: 40, Mizo National Front 24, Congress: 12, People's Conference 2, Independent: 2.
- **Films produced in India in 1986:** Total: 807. Telugu: 192, Hindi: 159, Tamil: 154, Malayalam: 130, Kannada: 59, Gujarati: 13, Marathi: 17, Bengali: 47, Assamese: 11, Oriya: 17, Hariyanvi 7, Punjabi: 1.

Tamil Nadu Chief Minister M.G. Ramachandran expired on Dec. 24 1987.

- **Sangeet Natak Akademi awards 1987:** *Musicians:* C.R. Vyas (vocal), Jasraj (vocal), Shobhu Gurtu (vocal), Abdul Halim Jaffar Khan (sitar), Imrat Hussain Khan (sitar/surbahar), Madurai N. Krishnan (vocal), Mani Krishnaswamy (vocal), T. Viswanathan (flute), T.K. Murthy (mridangam), Ram Marathe (natya sangeet), Chhabi Bandopadhyaya (kirtan), Banni Bai (Harikatha Kalashepam), Bhupen Hazarika (folk music-Assam) and Ali Mohammed Sheikh (folk music-Jammu and Kashmir).

  Dancers: U.S. Krishna Rao and Chandrabhaga Devi (gurus-Bharatanatyam), Chitra Visweswaran (Bharatanatyam), Uma Sharma (Kathak), Kalamandalam Gopi (Kathakali), Taran Kumar Singh (Manipuri), Pasamarthi Venugopala Krishna Sarma (Guru-Kuchipudi), Sonal Mansingh (Odissi), and Madan Mohan Lenka (Chhau-Mayurbhanj).

  Theatre: V.V. Shirwadkar (playwriting-Marathi), Gopal Chhotray (playwriting-Oriya), Tarun Roy and Ratan Thiyam (direction) and Sulabha Deshpande (acting).
- **Snooker Champion:** Bangalore, December 7: Dargin Morgan of Wales won the McDowell World Amateur Snooker Championship on debut with an eleven-frames-to-four victory over Malta's Joe Crech.
- **Grand Master:** Viswanathan Anand won Grand Master norm when he drew his game with Hungarian Grand Master Istvan Csom in the Bhilwara Grand Masters' Chess Tournament.

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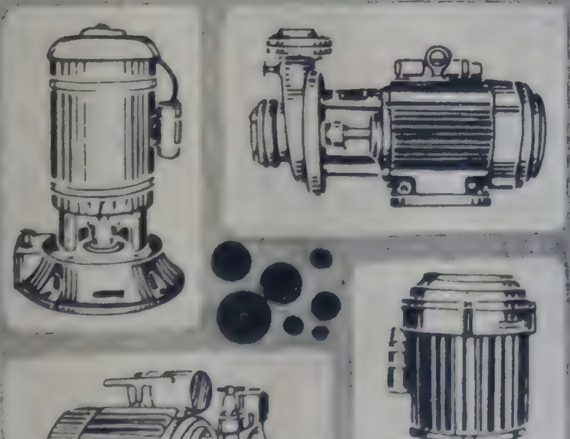

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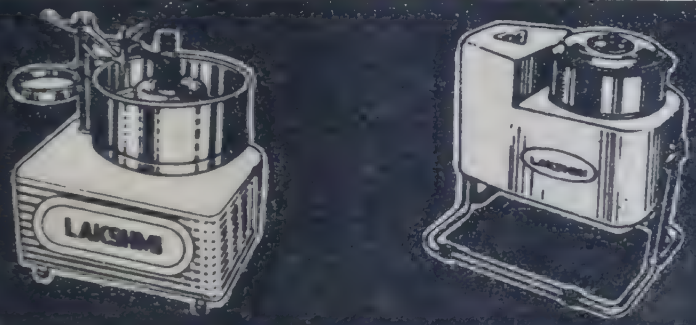

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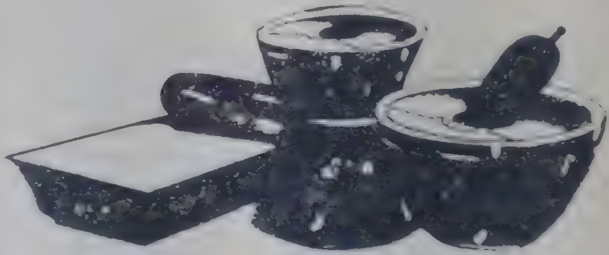

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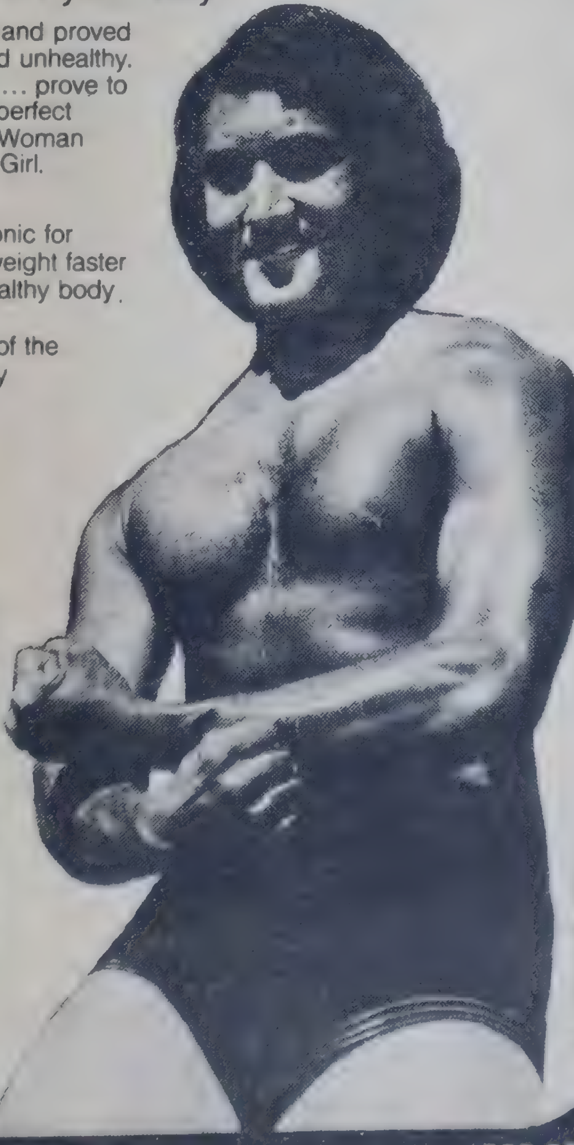

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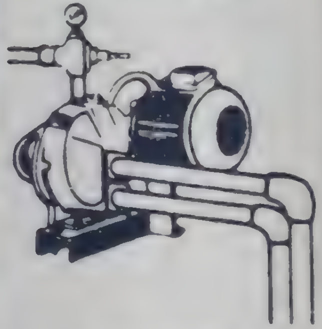

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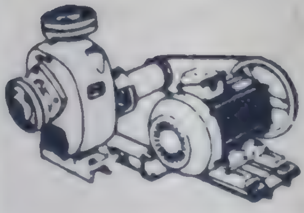

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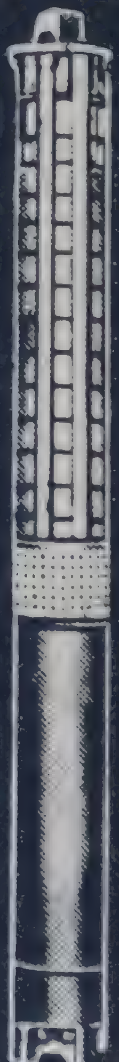

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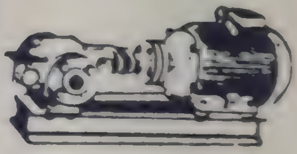

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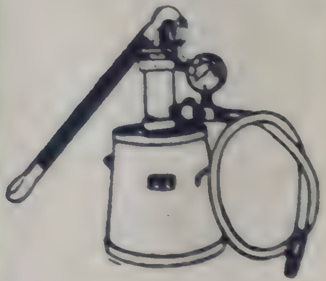

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